THE JOURNAL OF THE AMERICAN OSTEOPATHIC ASSOCIATION

Vol. 32, No. 7 | 430 N. Michigan Ave., Chicago, Ill. | March, 1933

Thirty-Seventh Annual Convention of the American Osteopathic Association

Milwaukee

July 24—28

Hotel Schroeder

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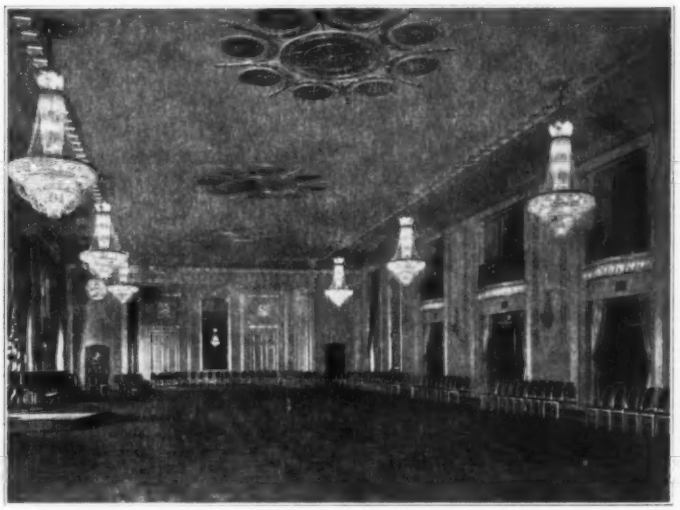

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July 24-28

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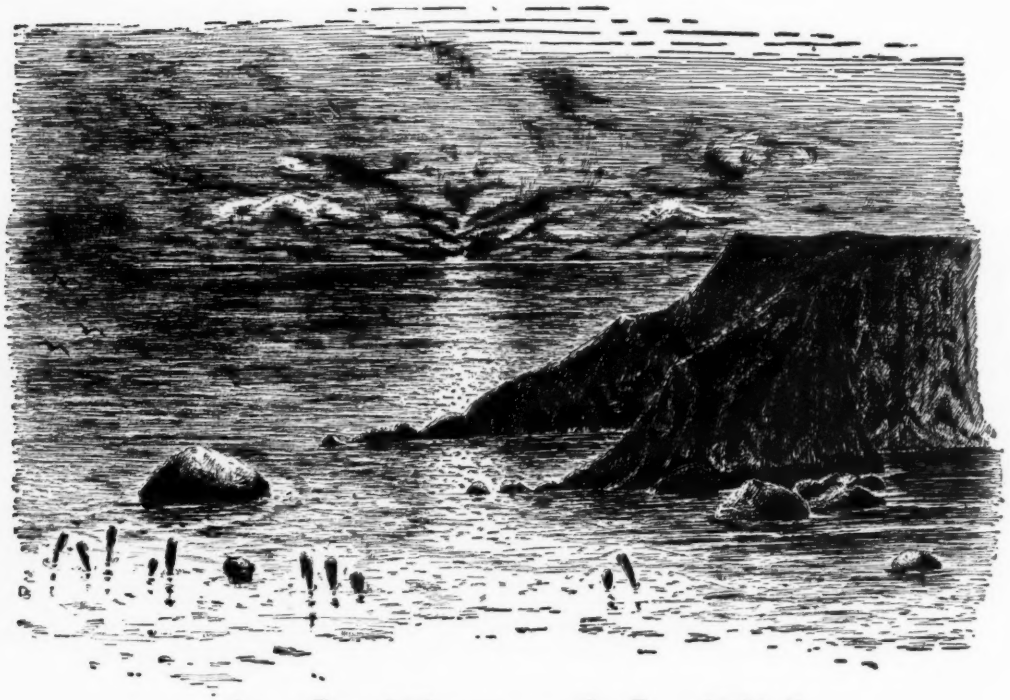

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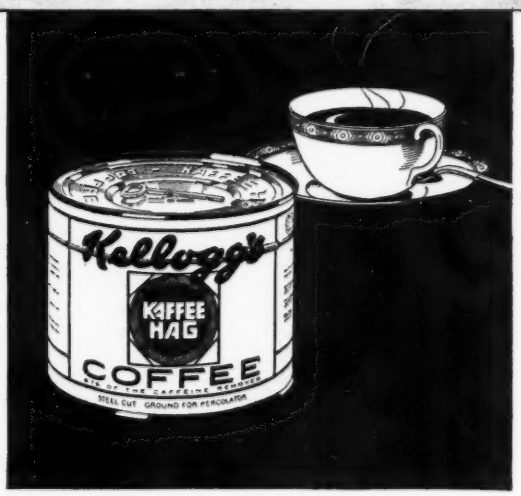

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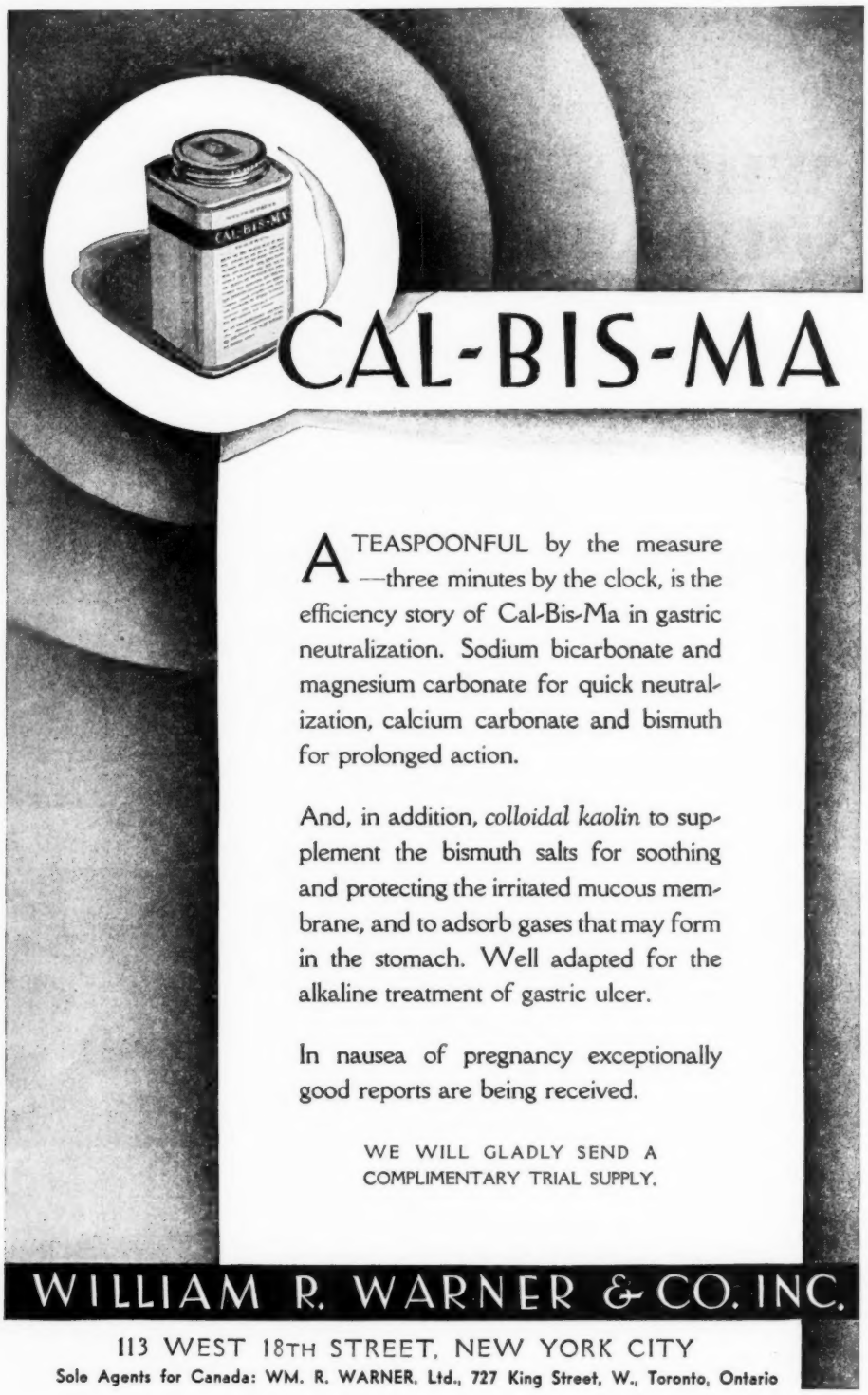

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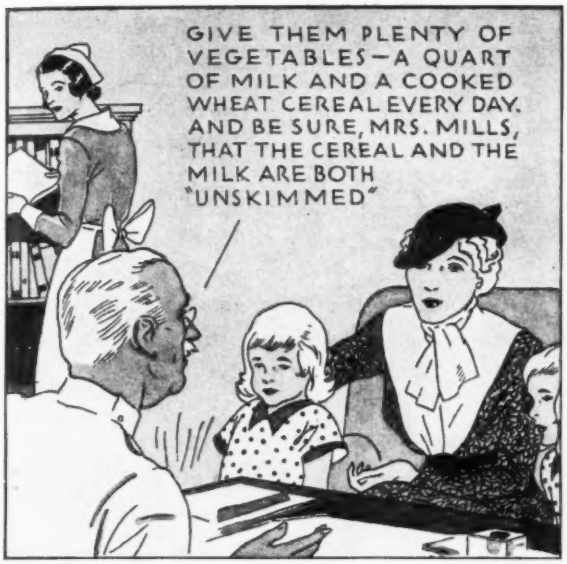
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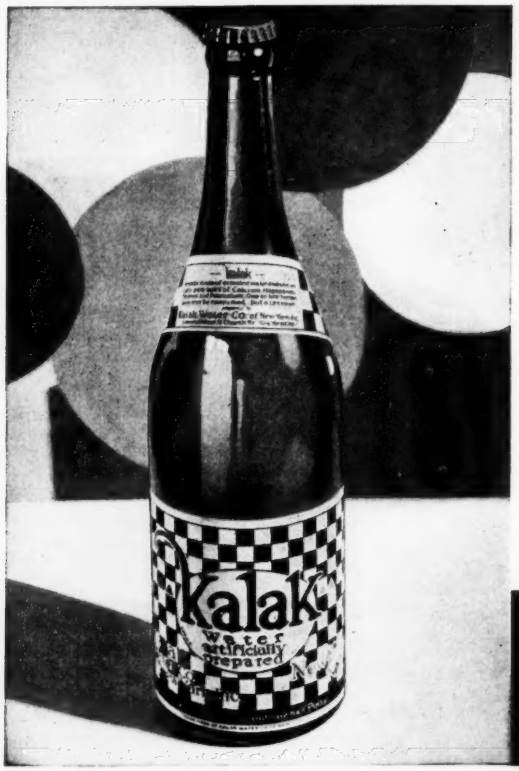

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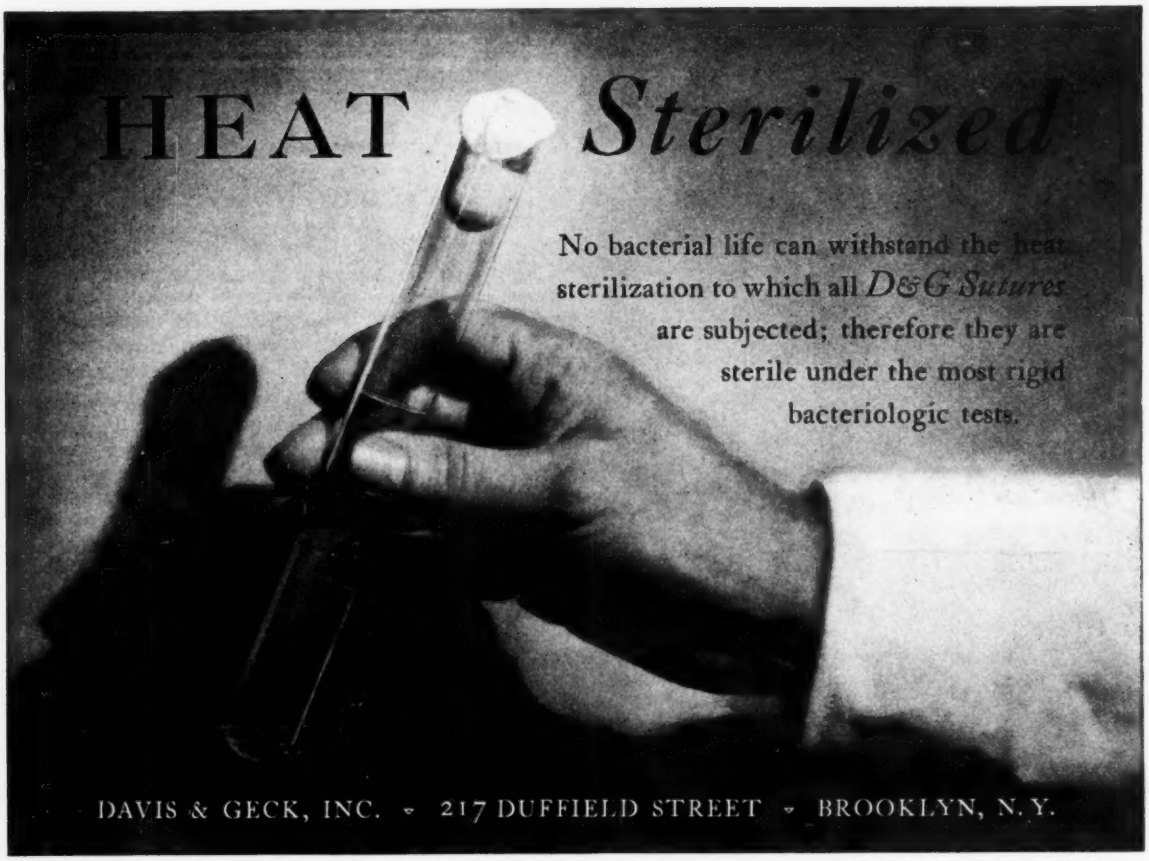
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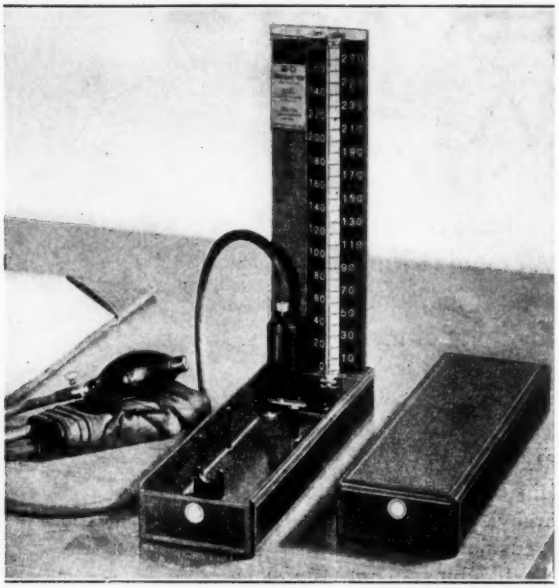

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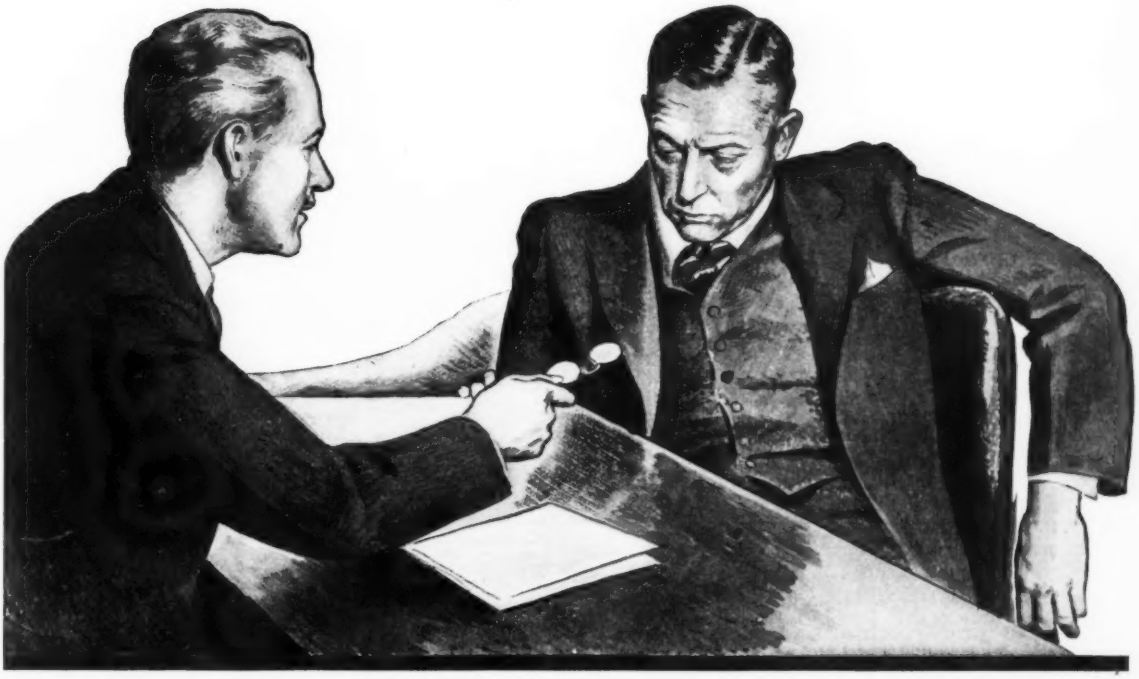

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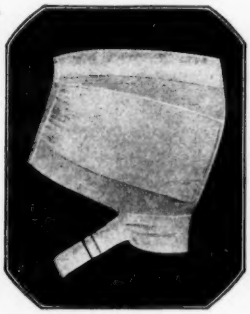

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EDITORIAL: "Irradiated Milk"

Jour. Amer. Med. Assoc., Nov. 26, 1932

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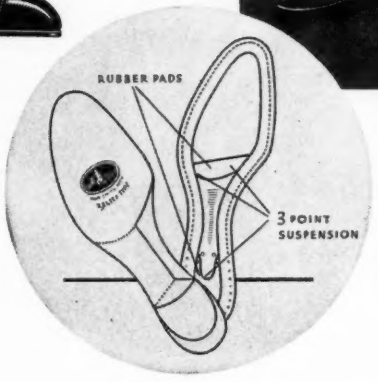

Above: Showing the concave construction of the semi-rigid Main Spring Arch that provides a cushion of air for the keenly sensitive center of the foot.

Left: Diagram of the position of the Main Spring Arch in Walk-Over correct shoes for men and women.

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The Journal of the American Osteopathic Association

PUBLISHED MONTHLY BY THE AMERICAN OSTEOPATHIC ASSOCIATION

Vol. 32, No. 7 | 430 N. Michigan Ave., Chicago, Ill. | March, 1933

Essay on Vertebral Lesions

ALBERT E. GUY, D.O.
Mount Vernon, N. Y.

CAVEANT LECTORES

Our editor is adamant on the propriety of prefacing an article with an introduction, of defining the caption and of defining the scope; therefore, ho! for a brief exordium to the four parts of these quixotic ramblings.

There still lingers in my memory the favorite saying of an old teacher when imposing a just pensum: *qui semel scripsit septem legit,* and I found its application always valuable; this article may then be considered as an assemblage of personal notes intended originally for the purpose of better fixing the writer's attention, step by step, upon various aspects of the problem of the lesion, which ceaselessly confronts the osteopathic practitioner.

Broadly, any structural derangement which interferes with normal function may be, for convenience, considered as a *lesion.* If it can be detected by our methods of examination and palpation, and furthermore, is amenable to reduction by means of osteopathic manipulation, it might be called an *osteopathic lesion* but for the fact that the term is more than ambiguous, has an element of bumptiousness, and considerably narrows the field of operation. Effectively, as practice amply shows, there are a great many forms of local disorders, distant from the spine, which are not amenable to local treatment, but which, however, are found reducible through appropriate manipulations of the vertebral organ. To such as those, that term would certainly not apply. Besides, away from "Main Street," in foreign lands for instance, *osteopathy* is at once taken at its face value, that is, bone disease and, by extension, a system of bone disease treatment; a fortiori, the expression *osteopathic lesion* is evidently not adaptable to requirements *urbis et orbis.*

From the pompous caption, Essay on Vertebral Lesions, the readers must not expect to find herein a plethoric census of *pedigreed* and *mongrel* lesions observable in their vertebral habitat; instead, they will quickly be made to realize, to their dismay perhaps, the vengeful intent of the writer to expose again the deplorable dearth of knowledge extant anent the topography of that habitat. It is obvious that the lesion cannot successfully be tracked down to its lair if the hunter is but superficially acquainted with the labyrinthine passes and other peculiarities of the region. It will be indicated, however, that the understanding of the detailed structure of *a vertebral unit* will suffice to secure that of the whole vertebral column; and then, with the normal tissues well in hand, the detection of functional topographic derangements will be much facilitated. It is advisable to bear constantly in mind that there is no such thing as a *single lesion;* it is a material impossibility, since every single part of the body is dependent upon others for its existence, and that any disorder affecting it must necessarily affect not only vicinal but also distant parts. Since an apparently single local disorder involves at once a multiplicity of lesions, and that furthermore, the involvement may assume numberless aspects, census taking would be an impossible task.

PART I

EXONUCLEAR LESIONS

In some of the earlier anatomy texts may be seen illustrations of the sagittal sections of vertebræ and articular discs, in which irregular extensions of the basement cartilage are located within the cancellous tissue of the bones. Then the conventional biconvex form of the disc is somewhat altered and there are depressions present in the floor at the roots of the extensions. It seems as if some of the cartilage had been extruded by pressure from within the disc. Poirier mentions extensions of the nucleus pulposus into the bones and also through the posterior layers of the annulus fibrosus, reaching close to the periphery. In the bone the nuclear substance is sheathed by cartilaginous tissue, soft within, but showing gradual ossification without. Some extensions are filiform, some cavitary, and others are fissural. These fortuitous observations open up a vast field of practical considerations.

Normally, tiny apertures exist on the inner surface of the basement cartilage, which seem a little larger in the region of the nucleus proper. The purpose served by those apertures is not, as far as we know, mentioned anywhere; possibly they are the terminals of some sort of canals located in the bones, through which exudate of nuclear substance is fed into the disc; this appears quite plausible, but it remains to be proven through careful and appropriate study, as the subject is important from many points of view. However, whatever may be the connections beyond the apertures, it is quite obvious that under ordinary circumstances there must exist means of preventing the extrusion of the nuclear substance, and then we are warranted in believing that these means are dependent upon the integrity of the circulation of body

fluids. Should this fail for some cause or other, so that a given aperture be left insufficient protection, then the nuclear substance could be forced to make its way insidiously outwards, sheathed in cartilaginous tissue, and the final result would be filiform extension.

A cavitary extension is the filling in of a depression, of a caving of the bony structure of the vertebral body, by a lining of cartilaginous tissue and an extrusion of nuclear substance. The osseous floor may have been crushed in through the application of a sudden, excessive pressure, generated within the articular disc. The symptoms of such lesions are well nigh undefinable; there may have been at the time of their occurrence a local lancinating pain accompanied by a general commotion throughout the entire vertebral column, and a painful sensation of shock in the occipital region; in the young particularly, violent exertions are common, high jumping, falls of all kinds, blows, etc., exact their measure of sharp but passing pains; sometimes there lingers for a while a condition of sprain, of backache. In the acute stage, and when the exact nature of the injury is unknown, the x-rays are of little or no help; it is only much later, when ossification is fully established, that the extrusions may be seen, particularly when suspected.

The fissural extensions occur following the splitting of a vertebral body through the action of sudden, violent effort of compression directed axially. There may be at first a caving of the osseous floor of the disc, immediately followed by a wedge-like intrusion of cartilage and nuclear substance. The symptoms would then be far more pronounced than for the other lesions, and recovery would require much longer time. But even after complete local recovery and with no discernible pathological sequelæ, there is a possibility of displacement of the articular facets which, when discovered through ordinary palpation, would as a matter of course, be considered as one of the usual vertebral lesions, easily amenable to manipulative correction. Such cases are found in practice, which have resisted the efforts of many expert hands and of adepts in specific treatment. It is in order, after a few attempts at correction, to consider the possibility of permanent osseous deformation, to endeavor to obtain a history of the occurrence of injury, and to secure a radiograph of the region affected.

According to the degree of the original injury several aspects may be considered: (a) In a mild case, in which good consolidation of the osseous structure takes place, the body may gradually adjust itself to the positional changes of the vertebræ, and there are no appreciable sequelæ. (b) Even after consolidation the osseous structure may remain weakened in certain parts and thus present insufficient resistance to the progress of further extrusion of the nuclear substance under the influence of pressure generated within the disc by the exertion of sudden and violent efforts. In such instance it has been found that the extruded mass, instead of reaching towards the other face of the vertebra, is deviated in the direction of least resistance, that is, towards the posterior wall of the vertebral body. It may then be stopped by the denser tissue of the wall, or it may break through, bearing against the posterior vertebral ligament; there, part of the mass is removed by resorption, and the rest undergoes rapid fibroid degeneration. It is found at autopsy in the form of flat nodules, or bean-shaped tumors, but it is always possible by careful work to trace a continuity between the nodule and the nucleus. Depending of course upon the amount and size of the extruded mass, its effects upon the contents of the vertebral canal vary. (c) With a fissure of large proportions, offering difficulty of consolidation because the movements of the body ceaselessly produce irritation of the osseous surfaces affected, the belief is fully warranted that the disorder begins action as the etiological factor of various kinds of so-called vertebral disease: the germs, filtrable or otherwise, follow in its wake.

In recent years attention has been increasingly focussed upon the occurrence of spinal disorders caused by the presence of extruded nuclear substance within the vertebral canal. As usual, the publication of a few reports dealing with extreme cases, sufficed to awaken interest and to bring forth a large number of observations, the importance of which may not have been fully realized at the time, but which it seems now possible to incorporate into a well coördinated whole. While in some instances the traumatic origin of the extrusion was undeniably established, in others the possibility of neoformation, of fibroid tumor, of chondroma, of chordoma derived from persistent remains of the embryonic notochord, was seriously entertained and discussed. Almost invariably the pseudo tumor was found formed of a central core whose tissue had the characteristics of the nuclear mass, and of a fibrocartilaginous coating of variable thickness, the texture of which tends towards ossification. The traumatic theory is now thought the most acceptable, particularly because, as stated before, traces of continuity exist between the nucleus and the nodule.

To the osteopathic profession the subject should prove of very great importance for several reasons. In the first place, one might think that the cases reported thus far represent after all but a grouping of isolated instances; however, in view of the facts presented by Dr. Andrae, an assistant of Professor Schmorl, in "A Study of Cartilaginous Nodules of the Disc," one must realize the possibility of the existence of a large number of totally unsuspected cases. He examined 356 vertebral columns and found 56 exonuclear lesions, or a frequency of 15.73 per cent. The ratio of male to female subjects was about three to five. The size of the tumors varied from that of a grain of wheat to that of a bean; they seemingly had the same macroscopic aspect, the same lateral location upon the posterior aspect of the disc, and finally the same histological structure as found in tumors operated on by surgeons.

In a most able article on the subject published in *La Presse Medicale* of December 6 and 20, 1930, by Drs. Alajouanine and Petit Dutaillis is presented a remarkable clinical study of two acute cases under their care, which is replete with details concerning as well the symptoms as the operation of laminectomy. In spite of the difficulties of such an intervention the recovery of the two patients was particularly rapid and their condition is now as near normal as could be expected. Altogether these doctors have investigated some 21 cases, 10 of which affected the cervical region, 3 the dorsal, and 8 the lumbar. These figures, pertaining only to one series, should merely indicate that the most mobile regions of the column are most likely to be lesioned.

Another article by Drs. Calvé and Gaillard, in the *La Presse Medicale* of April 16, 1930, on the "Nucleus Pulposus," is very interesting; it deals mainly with

cases of nuclear intrusion within the cancellous tissue of the vertebræ. They were shown some 4,000 vertebral columns by Professor Schmorl, and found a frequency of about 38 per cent affecting all ages, but greater for males than for females. These doctors, in charge of the great establishment at Berck, are renowned bone specialists. The above percentages should not be accepted as representing a general condition, but rather as concerning series of cases of spinal deformations, although, unfortunately, such cases are much too frequently encountered.

Dr. Byron Stookey presents in a study on the "Compression of the Cervical Cord by Anterior Extradural Chondromas" in *Archives of Neurology and Psychiatry* August, 1928, in which the symptoms and surgical treatment of seven cases are exposed in great detail.

Quite a number of other observations have come to light recently, and no doubt they will now be followed by many others, as the subject is of more than ordinary interest. We may therefore consider it well established that there is such a thing as an *exonuclear lesion;* that it has been found of fairly frequent occurrence; that its symptoms cover a wide field, depending of course upon the region affected, and that consequently it is difficult to detect and to trace properly. It stands thus, unsuspected, somewhat on the same plane as an obscure, but potent, focus of infection (diseased tooth, tonsil, blood, etc.) In reading through the reports one gains the impression that the earlier observers were reluctant to admit the possibility of the occurrence of an excrescence in a so well protected area which would be other than a tumor, which as ordinarily understood is a formation due to the influence of a germ, of a refractory embryonic element, of a humoral extravasation, etc. But when caused by a sudden intrusion, or development, of a foreign body, the term pseudo tumor has been applied.

One most convincing report is that of Drs. Middleton and Teacher in the *Glasgow Medical Journal* of July, 1911, on "Injury of the Spinal Cord Due to the Rupture of an Intervertebral Disc Through Muscular Exertion." A laborer while lifting a heavy metallic plate sensed a cracking in the lumbar region, and felt a most acute pain. For a moment, maintaining a flexed position, he was able to continue his work; but the next day the man suffered a sudden and atrocious pain radiating from the lumbar region to the lower limbs, and then complete paraplegia set in along with sphincteral disorders. He died on the sixteenth day of uremic infection. On autopsy a whitish mass, 15 mm. in diameter and 5 mm. thick was found on the posterior aspect of one disc; the cord presented signs of acute compression and had undergone local softening with diffuse infiltration of blood; the mass had the same histological structure as the nuclear substance. The verdict was very obvious, death ensued from disorders caused by the bursting of a disc and intrusion of a nuclear mass into the vertebral canal.

Wishing to study the process of production of such a lesion, Middleton and Teacher secured the lumbar section of a spine from a fresh subject; they placed it in a bench vise and exerted a gradual endwise pressure thereon. They watched the development of a bulge on the posterior aspect of the discs, which, under greater pressure, reached to practically the same size as that found at autopsy. On a transverse section of the disc it was seen that the bulge, or nodule, had been formed by the displacement of the nuclear substance, which was forced through the posterior fibrocartilaginous lamellæ, but without, however, extending past the fibrous envelope of the disc; anteriorly the disc was intact, as could well be expected in view of its structure. From this, we must not hastily conclude that since the test pressure must have been far greater than that developed by mere muscular exertion in the aforementioned case, and yet had proved insufficient to cause extrusion of the nuclear matter, therefore it is not proven that the said exertion had caused that matter to extrude. It might justly be argued that the structure of the disc, including its peripheral lining, must have been weakened by disease of some kind or other. On the other hand we must not forget that a suddenly applied load is capable of developing stresses several times greater than the intensity of that very load.

This point is most important; without discarding the possibility of disease, our own experiments, mentioned in THE JOURNAL of July, 1930, and which had for object the study of the elastic properties of the nuclear substance, have shown that by spacing off the applications of pressure it was possible finally to cause the extrusion of the substance along the posterior wall of the disc; the extrusion was not jet like, but rather a sustained oozing out. From the start, after each application of pressure, the latter was released and the disc given time to return towards its normal shape; the return was increasingly slow, thus evidencing the impairment of elasticity. The transverse section of the disc disclosed permeation of the entire annulus fibrosus by the pulp, but with a greater distension of the lamellæ on the posterior side.

Even under the greatest pressures *gradually* attained, but without interruptions, it was not possible to disrupt the disc, although the bulge was much pronounced, and there was some extrusion; and ultimately the bodies of the vertebræ themselves were seen to fissure.

Pondering over these observations led us to some interesting conclusions; a great abnormal initial stress may cause the pulp, which is very viscous, to penetrate the interlamellar spaces; because of this viscosity the resultant clogging of the fibers would require some time before clearing up; occasional repeated abnormal stresses would interfere with the clearing process and add to the clogging; so that eventually the annulus would reach a critical stage of diminished resistance which might permit the sudden, massive, extrusion of the pulp into the vertebral canal; once there the mass could remain in the form of a nodule encapsulated in fibrocartilaginous tissue, as found by the observers mentioned. In very acute cases the mass may be large enough to come into contact with the cord; the symptoms are then of extreme severity and develop from the onset of the disorder. When of small size the mass may not reach the cord and thus disturb the ordinary activities of the body, but a wrong position, a sudden violent exertion, may force a passing contact which will produce sharp pain and distress symptoms. Generally speaking, the presence of such a nodule, of whatever size, within the vertebral canal is a permanent element of danger. There is no doubt that once a disc has been affected by overstraining there must be some change in the alignment of the vertebræ which, to the uninitiated, would appear as an ordinary vertebral lesion, quite susceptible of reduction. Let us beware

of chronic and refractory lesions: many of them are amenable to conscientious and patient treatment, but not to the *presto pronto* "specific" kind. There lies all the difference between the artisan and the tinker.

Citation of a case referred to us by an allopathic friend is deemed worthy of attention as regards gross symptoms, treatment and results. The patient, a young lady, was a constant sufferer from ambulatory hindrance—short steps, unsteady gait—coupled of course with a varying degree of dizziness; the acuity of vision of one eye was somewhat below normal, that of the other was gravely impaired; there were menstrual disorders—irregularity, duration, profuseness, pains, general disturbances; the patient was stout, much inclined to obesity; there were no evidences of blood disorders, and no record of infancy diseases. The upper dorsal region, particularly to the right, was very rigid, the lumbar very tender, and the cervical much involved. The case was very puzzling; however, it was evident from the response to the first three applications of osteopathic treatment that the gross vertebral column possessed structural integrity; then, whence the disorders? Under persistent questioning, the mother could not recollect any untoward accident, shock, fall, etc., but finally, most willing to help with any kind of clue, she stated that up to the eighth month her baby had been in most perfect health, then all of a sudden became affected in some obscure manner and thereafter did not develop normally; the baby could not walk until past two years old. Evidently something had happened which seriously impeded normal development. Avoiding any form of prompting, it was finally brought to light that the baby had been cared for by a rather indifferent nurse, who one day in a moment of inattention allowed the child she was carrying on her arm, in a sitting position, to drop abruptly backwards, hanging by the knees. It was then remembered that shortly afterwards the change in the child became apparent, but no one thought of connecting the seemingly ordinary incident with that change. We feel fully warranted in the belief that to the abrupt backward fall of the child—being the one salient point in the whole history of the case—may be attributed the formation of a number of exonuclear lesions to which may be traced the origin and development of the disturbances affecting the patient.

Under ordinary osteopathic treatment the menstrual disorders gave way totally, dizziness disappeared, walking became practically normal; the ocular muscles functioned well and, according to the eye specialist now in charge of the case, vision in both eyes is making rapid and satisfactory progress.

To some practitioners this tracing of etiology may seem fanciful; for us it was helpful because, sensing the integrity of the osseous structure, we bent our efforts upon the utmost activation of the circulation which, alone, could be depended on for the gradual reduction of the abnormal growths, or rather, of the pseudo tumors most probably existing in the vertebral canal.

Two others, but rather extreme instances, might be cited, which could be held to prove that many ills in after life may actually originate at birth. Both concerned babies less than one month when referred to us; one had most severe torticollis, with of course the whole cervical region extremely involved; the other could not take nourishment of any kind because of an intense constriction of the cardiac end of the esophagus produced by severe spinal lesions. These troubles were easily traced to remissness both during delivery and after. They were extraordinary cases, it is true, but common, daily observation suffices to make us realize the influence which the dangers incurred during the formative years of the individual may have upon the health and comfort of the grown-up.

A list of references will accompany the final article in the series.

Blood Typing and Transfusion in Emergency Practice

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Surgeons who are obliged to depend upon small and relatively inefficient hospital services frequently find themselves embarrassingly handicapped in the first-aid treatment for loss of blood.

The preparation of an efficient blood-transfusion service is no small task, and one is inclined to postpone such preparation indefinitely, hoping that Mother Luck will continue to smile upon him and ward off hemorrhages in his patients.

During the first years of our surgical practice in a rural community, the lack of transfusion equipment, both material and mental, was a serious matter. We were constantly conscious of a feeling of weakness, of unpreparedness in that respect. The specter of disaster was always in the offing, awaiting his opportunity to strike down both patient and physician.

The transfusion of blood is a surgical procedure. To be accomplished neatly and successfully, a nice teamwork on the part of the operator and his assistants is essential. To be sure there are a score of mechanical contrivances on the market which are supposed to be fool-proof and which will obey every command of the operator. With such complicated machinery we have had no experience. Somehow, such contrivances do not seem to satisfy our desire for neat, clean, harmless surgical equipment. We are inclined to think that machinery of this type is seldom used in centers where blood-transfusions are given frequently.

Perhaps the pretransfusion typing of the bloods of the donor and recipient is the most important phase of blood-transfusion. Without a correct typing, the transfusion is likely to result disastrously to the patient. With an exact typing of the two blood specimens, the operator may go on with his transfusion technic without fear of harmful consequences.

For practical purposes it is of little importance to lose any time worrying about whether a certain specimen of blood is Type I by the Jansky classification or is Type IV by the Moss classification. The

problem to be solved is whether the blood from the donor will act well when mixed with the blood of the patient. In order to be absolutely sure of this very important matter, it is always necessary to mix the two bloods *outside* the two persons in question. It is too late if the question is decided unfavorably after the transfusion has been given.

The only real value attached to the determination of blood types is for the rapid elimination of undesirable donors, with the least amount of laboratory work. For instance, if the patient (recipient) happens to belong to Type II, it is much easier to choose only donors belonging to Type II for the more important cross-typing of the two individuals. In cross-typing it is necessary to have a specimen of blood-cells in physiological salt solution from each individual, and a specimen of clear serum from each. To obtain a specimen of serum from a prospective donor requires time and the use of a centrifuge. On the other hand, his blood type may be learned from his blood-cells alone.

In a surgical service where transfusions are given frequently, it is convenient to have a list of healthy young men, Wasserman negative, and listed according to blood type. In case of emergency, two or three of these prepared donors of the same type as the patient, are sent for, and their blood specimens are cross-typed with a specimen from the patient. These young fellows, college students usually, are eager to sell a pint of blood for $50, or less. If the patient is financially unable to pay a fee, the relatives are called upon.

For the purpose of cross-typing we have worked out a method whereby the procedure is accomplished with neatness and dispatch. This method perhaps is used elsewhere, but we have never seen it employed.

Cell-suspensions in physiological salt solution are needed from both donor and patient. Likewise a specimen of clear serum must be had from each. None of these specimens need be sterile unless the determination is to be postponed.

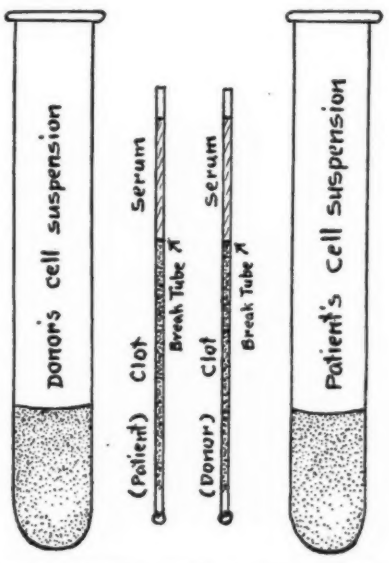
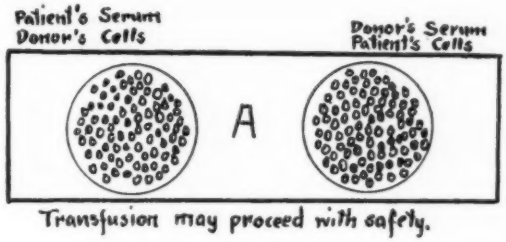
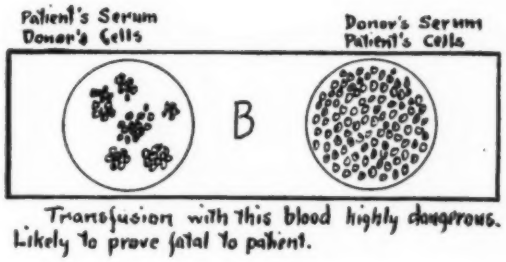


Fig. 1. Equipment needed for "cross-typing."

We use ordinary capillary tubes, 7.5 cm. in length and 1.5 mm. in diameter, which tubes may be purchased through the instrument supply houses.





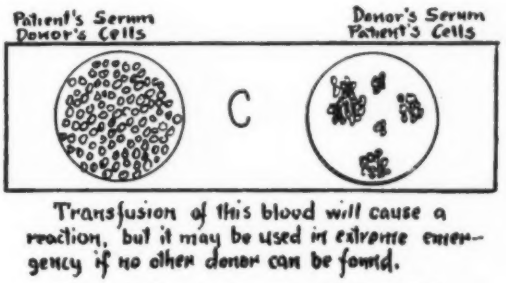

Patient's Serum
Donor's Cells
Donor's Serum
Patient's Cells
C
Transfusion of this blood will cause a reaction, but it may be used in extreme emergency if no other donor can be found.

Fig. 2. Findings in the "cross-typing" of blood.

The tip of the donor's finger is punctured as for the various blood examinations, and as the drop of blood appears it is allowed to flow into the capillary tube until the latter is nearly filled. The end of the tube left empty is immediately sealed in the gas flame. The tube is then in the form of a tiny improvised test-tube. Some of the blood from the finger is then mixed with physiological salt solution by inverting a test-tube containing the salt solution over the finger, allowing the solution to wash off sufficient blood to make a good pink suspension. Identical technic is used on the patient.

The capillary tubes and suspension tubes are carefully labeled, and time is allowed for the clotting of the blood in the capillary tubes.

After the clots have formed, the capillary tubes are placed in the centrifuge (merely dropped into the regular centrifuge tubes in which are wads of cotton).

After whirling sufficiently, the capillary tubes contain sufficient clear serum, which is obtained by breaking the tubes just above the clot and blowing the bubble of serum out upon a microscopic slide. (To be sure, if many cross-typings are to be done, it may be more convenient for the patient if a larger amount of blood is obtained from a vein with a sterile hypodermic syringe.)

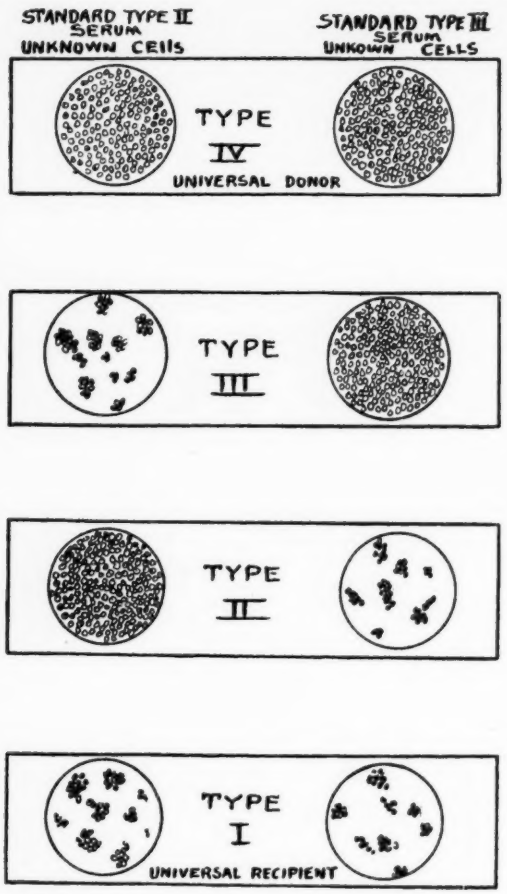


Fig. 3. Ordinary typing by use of "standard" serum.

To cross-type, we place the tiny drop of donor's clear serum in one of the concavities of a two-cavity hollow ground microscopic slide. Into this clear serum we mix a loopful of the patient's pink cell-suspension. In the other concavity on the slide we place a drop of the patient's clear serum, and into it we mix a loopful of the donor's pink cell-suspension. (It is necessary to flame the platinum loop between transfers, otherwise confusion may result.) The concavities in the slide are then covered with cover-glasses (preferably greased around the edges to prevent evaporation) and the preparation is examined with the low-power microscope.

If the red cells in either concavity go into huddles, grouping together as if for protection against a common enemy, the donor is unsatisfactory and should be discarded without ceremony. One should wait 15 or 20 minutes before pronouncing a specimen free of agglutination.

If the red cells in *both* mixtures remain well distributed and continue to look like good peaceful red cells throughout the twenty minutes, the donor is satisfactory, and his blood may be used with safety.

It is a simple problem to prepare for the simple typing of blood specimens. The technic is fascinating, and one is well repaid if he plays around with the technic even if he never has occasion to give a transfusion.

It is first necessary to obtain known specimens of sera of Type II and Type III. These may be purchased from Parke Davis & Company and perhaps other supply houses. These sera will keep for many months if care is used to prevent contamination. However, by the time the purchased sera become useless, the technician will have found individuals of the same types, and he may easily obtain a fresh stock of serum without having to pay for it. The stock supply of known serum may be kept indefinitely if tiny amounts of it are sealed up in sterile capillary tubes (the same tubes mentioned before). Sufficient serum for one reading is allowed to flow into the sterile capillary tube (from a sterile hypodermic needle and syringe) and both ends of the tube are then sealed in the flame. We have a stock of these tubes which are potent after three years.

To learn the blood-type of an individual, only a suspension of his red cells in physiological salt solution is necessary.

A drop of each of the standard Types II and III are placed in the concavities of the hollow-ground slide. A loopful of the suspension is placed in each drop of known sera (being sure to flame the loop between transfers). The mixtures are covered and the slide placed in the microscope.

If agglutination occurs in both mixtures, the individual is Type I. If agglutination fails to occur in both mixtures, the individual is Type IV. If agglutination occurs in one and not in the other, the type of the individual is the type in which agglutination failed to occur. For instance, if there is agglutination only in the Type III mixture, the individual's blood belongs to Type II. If the cells in the Type II mixture only, agglutinate, the individual belongs to Type III, and his name and address should be taken so he can be used to restock the serum supply. (Type III is quite rare; so is Type I (Moss classification). These people sometimes are willing to help out in an emergency when other donors cannot be found.)

In another paper we will describe the technic of transfusion of whole, unaltered blood, by the aid of the Vincent tube.

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Principles of Manipulative Treatment

The Low Back Problem,

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XI

PRIMARY SACRO-ILIAC MALADJUSTMENT
DIAGNOSIS (continued)

The understanding hand acquires palpatory skill and diagnostic exactness only after following specific palpation methods. The exact methods for sacro-iliac examination are determined, in part, by the anatomical, physiological and pathological characteristics of the joints as already described, and in part by rules that govern palpation technic in general.

Let us consider a few simple facts of the anatomy of the sacro-iliac articulation.

Its anterior aspect cannot be examined easily for mobility or immobility. So we are limited to a tactile

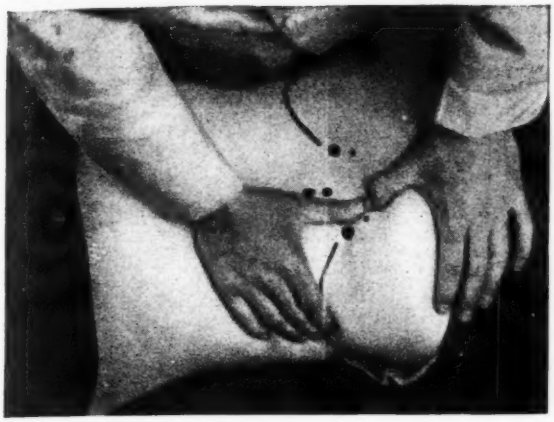

Fig. 1.
The illustrations are from motion picture films.

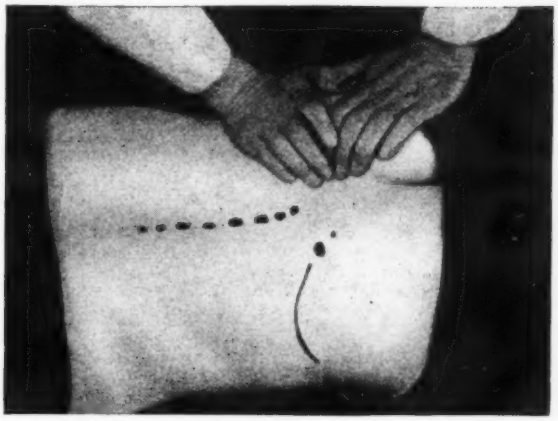

Fig. 2.
For explanation of all illustrations in this article see text.

examination of its posterior aspect, which at first thought might seem unsatisfactory because of its heavy ligamentous investment. However, at the posterior end of the horizontal limb, in the region of the posterior *inferior* spine of the ilium and directly below, the ligamentous covering is perhaps thinner than at any other place on the dorsal exposure of the articulation. This makes it easy to examine here and to apply tests for motion. It will be shown later what these tests are and that they can even be applied to the upper part of the articulation where the ligaments are quite dense.

Next to disturbed mobility in the joint, as a diagnostic sign, is inflammation or chronic thickening of the posterior sacro-iliac ligaments. This also, of course, necessitates diagnostic palpation of the posterior aspect of the sacro-iliac joint.

How the posterior ligaments are injured in certain movements between the sacrum and innominates has already been shown. Sometimes the horizontal posterior sacro-iliac ligament receives the greatest traumatism, and at other times the lower oblique posterior sacro-iliac ligament. Such traumatisms produce inflammatory changes which require the examiner to palpate carefully to recognize limiting adhesions, chronic thickening and acute inflammation. Only when these definite pathological changes are precisely known is one entirely able to apply effective and beneficial treatment.

Another possible diagnostic finding necessitating discriminating sacro-iliac investigation, is tenderness, periosteal and muscular, which gives much valuable information upon the exact pathology present.

Let us now consider the position of the patient that most easily permits this tactile examination of the posterior aspect of the sacro-iliac articulation.

With the patient face down upon a treatment table, the doctor who has carefully studied sacro-iliac anatomy upon an osseous example in the ventral prone position, will easily visualize the true structure of the iliosacral mechanism.

That part of the auricular surface which is the horizontal limb, when the patient is upright, is now at an angle of about forty-five degrees with the horizon, its lower or distal end being highest above the table. Also, what in the upright position was the vertical limb of the auricular surface, will now be at an angle of about thirty-five degrees with the horizontal, its highest end nearest the head of the patient.

The two limbs meet at their lowest ends, or the apex, which points toward the table. This relationship is important in palpation diagnosis and should be correctly visualized before proceeding.

In the open or uppermost angle formed by the two limbs lie the posterior superior and posterior inferior spines of the ilia. In the region of, and above the posterior superior spine, lie the interosseous and horizontal posterior sacro-iliac ligaments that are found at the end of the so-called vertical limb. In the region of, and extending below, the posterior inferior spine is found the oblique or long posterior sacro-iliac ligament that covers the distal end of the so-called horizontal limb. It is necessary to understand these relationships thoroughly to visualize each detail of anatomical construction quite accurately.

The figures 1, 2, 3, 4, 5 and 6 show the various methods used by the writer for testing sacro-iliac movement. By their use one usually can convince himself in a very few minutes that iliosacral movement is a normal function. It is but a step further to use the same palpation methods to detect pathology. Some comment upon these methods is in order before they are attempted by the student and then he is urged to practice until he becomes proficient in their use.

In all these six pictures some parts of the examiner's hands, other than the sensitive finger tips or thumbs directly over the sacro-iliac joint, are in contact with the patient's body. There is a definite fundamental reason for this.

It is well known that when the tactile nerve elements are under palpating pressure they are less sensitive. Therefore, in an ideal palpation method to secure information on the condition of any articular structure the mobilizing forces are not exerted by the palpating elements. Therefore, because it is desirable if possible to produce motion in the sacro-iliac joints, some part of the hands, other than the sensitive finger tips, is used to produce this motion. In each method to be described the contacting hands produce a definite articular motion in the sacro-iliac joints. The more sensitive finger tips only are left to detect, by deliberate palpation, any errors of this motion. This principle of light touch is no less important when

Fig. 3.

Fig. 4.

palpating for thickening of ligaments, the slight swelling of acute inflammation, or muscular fibrositis. Only the gentle touch of a comparatively relaxed hand yields a maximum of information. Upon these general principles of palpation technic does the student most frequently defeat himself.

Perhaps the method easiest learned is shown in figure 1 where the sensitive palmar aspects of the two thumbs are laid along the posterior aspect of the sacro-iliac joint, the tips of the thumbs together. The medial sides of the thumbs contact respectively the posterior superior and the posterior inferior spines of the ilium. The pads of the thumbs lie on the tissues over the adjacent part of the sacrum. Now by springing the articulation by downward pressure of the palms and fingers (not the thumbs) or by rocking the pelvis from side to side, with the palms, it is not difficult to detect the motion taking place in the iliosacral articulation. It is important to note that the thumbs only delicately palpate. Also, they do not slip upon the skin. They do not participate in the pressure used in moving the articulation. Because they contact both the ilium and the sacrum at the same time, the motion between the two is very easy to perceive. This method requires perhaps the least practice of any of the four described. One should be certain that it is not attempted upon a nonmobile articulation in the beginning. Several patients should be practiced upon until the user becomes proficient.

The application shown in figure 2 is also a valuable method and preferably should be used with the operator standing alternately upon either side of the table. Later, the student will perhaps use the method shown in figure 1 upon the opposite side, and then without changing his position, adopt this second method for use upon the articulation nearest him. In the second method the tips of many of the fingers are in contact with the dorsal aspect of the sacrum. The palmar aspects of the distal phalanges are against the posterior and the inferior spines of the ilium. The palms of the hands are distinctly in contact with the buttock and the lumbar torso. By rolling the patient or by alternate downward pressure and relaxation by the palms, motion is quite easily produced in all or in parts of the iliosacral joint. It is detected by the palpating finger pads and ends.

The third method, shown in figures 3 and 4, shows a test for the deeper or more difficult iliosacral movements. Great force can be exerted downward by the palm of the left hand upon the lower sacrum and buttock. Downward springing of the iliac crest is also produced by the fingers of the right hand. The fingers of the left, and the thumb of the right, hand are lightly in contact with the dorsal aspect of the joint and can thus detect motion or its lack in the various parts of the articulation.

Figures 5 and 6 illustrate the application most powerful for estimating the extent of adhesion and immobility present. Yet even here the fingers do not produce the movement. The articulation is sprung by the palms of the two hands. Errors of movement are sought by the relaxed fingers, the distal ends of which may be moved up and down along the joint.

In none of these palpation methods must the units doing the actual palpating, move upon the skin. An error in this respect will greatly confuse the examiner. Slow motion photography shows that the other parts of the operator's hands do move upon the surface, but the digits, lightly in contact with the dorsal aspect of the iliosacral articulation, do not. Also, an air-cushioned table permits a much better springing action.

Many other excellent methods for testing iliosacral mobility have been described in this JOURNAL, but space does not permit their review at this time. The four described above have been those most easily grasped by the students it has been the writer's privilege to teach.

The technical features of the palpation methods for determining the other features of the complete diagnostic picture, such as tenderness, etc., are so well known to most osteopathic practitioners that no comment is needed other than that already given upon the point of the lightness of touch. Therefore the findings of restricted mobility, adhesion, inflammation and muscular fibrositis present in the most common sacro-iliac maladjustments can now be given as each occurs in definite maladjustment conditions.

It was shown last month, under mechanics of the production of sacro-iliac maladjustment, that in certain cases the horizontal ligamentous fibers receive the greater strain and therefore become inflamed and thickened or severely tensed. This occurs both when the upper sacrum moves forward down the vertical limb, and when the innominate moves backward along this same limb. In either case articular mobility is

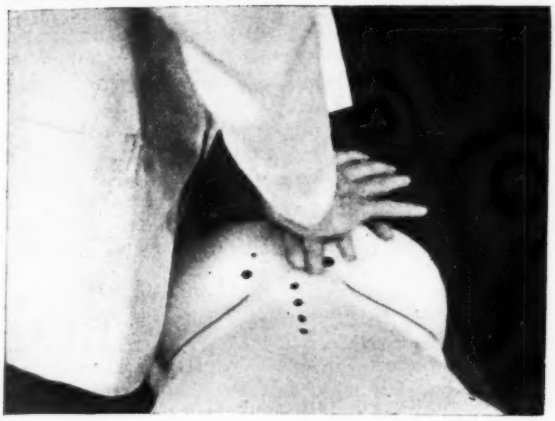

Fig. 5.

Fig. 6.

apt to be decreased or entirely lacking in the region of, and above, the posterior superior spine. In chronic subluxation, produced by these movements, little if any tenderness may be present in the articulation. In acute strain, much tenderness is usually present because of inflammation. Relative immobility and ligamentous thickening will give the diagnosis in each. Some actual malposition may also be noted, and because of the induced pelvic tilt, a straining mechanical irritation is often found in the gluteal muscle fibers in the *upper* portion of the buttock. This is especially true in the relatively thick gluteus medius. These findings indicate what pathology is present (especially the finding of comparative immobility in the upper part of the joint) and serve to indicate appropriate treatment.

Likewise it was shown how the oblique sacro-iliac ligamentous fibers may show the greatest pathology with little or none occurring above in the horizontal fibers. This is caused by injury produced by pathological movement of the lower sacrum forward along the horizontal limb or by a straining movement of the innominate backward below, along this same limb. In such a case inflammation, thickening or extreme tension will be present with mobility decreased or entirely lacking in the lower part of the iliosacral joint.

In so-called posterior innominate lesions (including those in which the upper sacrum is forward) *malposition* of the bones is often difficult to detect because of the dense covering in the upper portion of the articulation. As a rule, the actual malposition can be more easily palpated in a so-called anterior innominate (innominate really back below or sacrum forward below) because of the thinness of the posterior joint covering at this point. This finding of a bony malposition forms a valuable diagnostic point in subluxation.

In subluxation there is usually a combination of diminished articular mobility, ligamentous tenderness or thickening from inflammation, periosteal tenderness from ligamentous tension, and a fibrositis of the gluteus maximus and medius in the *lower* part of the buttock from pathological tension, with, of course, less ligamentous tenderness in the chronic case. Again the pathological findings indicate the treatment.

In combinations of the two above described conditions, with up-slipped or down-slipped sacra, or innominates, his knowledge of sacro-iliac anatomy will readily tell the physician which ligaments would tend to be unduly tensed or relaxed in each case. For example, when an up slip of the innominate is added to an already existent so-called anterior rotation, it is not difficult to picture an oblique posterior sacro-iliac ligament greatly damaged, since each of the two movements would tend to strain it.

A direct slip of the innominate backward or of the sacrum forward, only slight in degree, is at times encountered. It can be produced by a manipulative technic often used for anterior innominate rotations, in which the patient's knee is forcibly made to approach the corresponding axilla. The adverse movement produced in the iliosacral articulation can produce an unwanted strain in both the horizontal and the oblique posterior sacro-iliac ligaments. This maladjustment might at first thought seem strange in that it could be visualized as both a so-called anterior and posterior rotation. It is not infrequently encountered, however.

We should also be reminded again of the condition described in a previous article, where maladjustments of opposite natures are found in the two iliosacral articulations of the same subject. The diagnosis is accomplished in the same manner as just described.

This discussion of the varying conditions of lesions found in the sacro-iliac will show why it was said in the section on pathology, that "To classify and describe accurately the gross and minor characteristics of *all* of the maladjustments that can and do occur in the sacro-iliac mechanisms, would be an endless and unnecessary task—endless because of the countless variation possibilities and wholly unnecessary from a technical standpoint, because with an adequate diagnostic ability mere naming of the lesions is unimportant." With ability in palpating the pelvic mechanism, the pathology detected will, of itself, indicate the proper treatment. It is not difficult to produce motion in an articulation, or a part of it, by manipulative methods when one knows exactly where and why such motion is lacking. A true and complete knowledge of the pathology, obtained through careful diagnosis, indicates both symptomatology and treatment.

The diagnosis of sacro-iliac relaxation can be accomplished by the same methods just described.

Only the examiner's experience will permit him always to recognize a relaxed or a relatively immobile articulation. This is especially true in bilateral conditions. The diagnosis of sacro-iliac maladjustment should not be based upon mobility findings alone, however, and in this fact lies the answer to the hypermobility question.

No differentiation has been made here of diagnosis of primary and compensatory sacro-iliac maladjustment. No particular diagnostic procedure is necessary. Compensatory changes occur in much the same manner as those in primary conditions. They are as a rule acquired more slowly. The chronic strain conditions exist most frequently, and bilateral involvements predominate. Compensatory sacro-iliac pathology can best be discussed further when the next subject, primary lumbar maladjustment, is covered.

Finally, it should be pointed out that in primary maladjustments the history often aids in the correct diagnostic interpretation. It is valuable also in prognosis.

TREATMENT

Most physicians of the osteopathic school are familiar with technic methods for normalizing the iliosacral articulations. Where these methods fail, the failure can usually be traced to a faulty diagnosis. This was one reason for devoting most of the present paper to diagnostic methods. Another reason was that many valuable methods for treating sacro-iliac pathology have been described by various writers in previous issues of THE JOURNAL.

As Carl P. McConnell has said, in an article well worth reading entire:

> It is well to become familiar with an extensive adjustment armamentarium, keeping in mind that the patient should not necessarily be adapted to some special technic but instead always adapt a technic to the exact requirements of the pathological condition. Routine methods are apt to be the bane of osteopathic art. It is so easy to drift into some general method punctuated now and then by a few specific measures, whereas each condition, by virtue of its specific qualities, invariably indicates distinctive technic requirements.*

The writer prefers, and uses to the exclusion of all other methods, the two-operator technic which, to the best of his knowledge, was originated many years ago by H. H. Fryette. Many corrective forces, almost unlimited in their direction and controllability, can be produced with it, and in addition to its specificity it does not injure the patient or produce additional pathology. Its results are often immediate in mobilizing iliosacral articulations and can be found so by the diagnostic methods already described. It embraces almost the only method whereby an innominate can be specifically moved forward along the horizontal auricular limb (the so-called anterior rotation) with pleasing certainty. Two operators are used, permitting manipulation by four hands, and precise control of the direction and force is thus assured. It can be used upon the aged, as well as upon the very young, and because of the protection afforded the subject's abdomen, it is thought to be one of the very safest methods for sacro-iliac adjustment in the pregnant woman.

This method was recently described at length** so that a repetition in full is not warranted here, although two illustrations and a few notes upon them will be found in the following paragraphs. The method will be used, among others, when primary lumbar maladjustment is discussed in a later article which will also contain many features upon the compensatory mechanisms incidental to primary sacro-iliac maladjustment. It will be shown then that since the sacro-iliac group (pelvic ring) is so closely related to the lumbar region, pathologically, and therefore therapeutically, it is only when the two are visualized in a composite picture that the image is technichally correct.

Figure 7 illustrates the positions of the two operators for the mobilizing technic to be applied to the upper part of the iliosacral articulation. The subject's thighs (not shown) are flexed upon the abdomen, thereby limiting lumbar vertebral rotation. This in effect makes the lumbar the handle to the sacrum and, when the pelvis is rotated, it is instrumental in turning the sacrum between the innominates. It is important to notice in figure 7 that the lower operator's thumb is placed high upon the innominate, that it is reënforced by the hand, and that the wrist and hand are backed by the physician's thigh. When

Fig. 7.

Fig. 8.

*McConnell, Carl P.: Osteopathic Studies. No. III. JOUR. AM. OSTEO. ASSN., Feb., 1932.

**Hoover, H. V.: Two-Man Technic. JOUR. AM. OSTEO. ASSN., Oct., 1932.

pelvic rotation is produced, after proper relaxation, the thrust is made ventralward along the groove of the vertical limb of the auricular surface. This is done by distinctly moving the pelvis forward, and not by pulling the patient's knees toward the lower operator. This pulling of the knees toward the lower operator is the mistake most frequently made by the student and only serves to produce strain on the lower operator. Pelvic rotation correctly executed is an easily accomplished and distinct movement produced by the thrust of the lower operator's right thumb, hand, wrist and thigh.

Figure 8 illustrates the difference in the technic when used to produce movement headward and ventralward along the groove of the horizontal auricular limb as for the so-called anterior innominate lesion. In this instance the lower operator's thumb will be noticed, contacting the innominate much lower. It is placed upon the posterior *inferior* spine and the part of the ilium directly below this osseous landmark. Other features of the technic, such as the thrust, etc., are the same as described in the article already referred to. Either of the two methods can be used with the upper operator holding the sacrum when no lumbar mobilization is desired.

The many phases of the sacro-iliac maladjustment problem, unless thoroughly understood, can seem quite complicated. The articulation is a complicated mechanism. Being so, each one should take sheer pleasure in understanding its manifold presentments.

A. T. Still meant to encourage us in study when he said: "Man, the most complex, intricate, and delicately constructed machine of all creation, is the one with which the osteopath must become famliar." Each must "dig on" if he would not be dissatisfied with his accomplishments.

The Osteopathic Pathology of Strains and Sprains

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By definition, a strain, as applied to joints, is an injury due to overuse or to excessive exercise. Actual injury to the ligaments is not inferred. A sprain, on the other hand, is a wrenching of a joint with partial or complete rupture or other injury of its attachments, and without luxation of its bones. By any present method of investigation it is frequently impossible to determine whether minute injuries to joint structures exist. Since a strain is associated with discomfort and with inflammatory reactions, manifestly some tissue injury is always present though this may be minute in degree. Since sprain may be associated with only slight, or even apparently negligible, tissue injury it is evident that no sharp line can exist between the two conditions. The term "strain," then, may be applied to milder degrees of injury, in which recovery occurs in comparatively short time, and the term "sprain" is given to those more severe degrees of injury in which there is some considerable injury to the articular tissues, and in which recovery occurs only after some considerable period of time. In ordinary cases of strain, correction of any abnormal relation of the bones with some rest of the affected part is all that is useful in treatment. In sprain, some artificial support and a period of complete rest may be necessary during the period of repair of the injured tissues. This distinction is not sharp. Intermediate grades of injury exist from very severe sprains to degrees of strain which are almost negligible.

The pathological changes which occur as a result of strain are identical in character with those following sprain but differ considerably in degree. A review of certain structural relations of joints may be of interest in this connection.

ANATOMIC CONSIDERATIONS

The structure of joint surfaces presents several interesting traits. The cartilage which is present in joints is like that which precedes the development of bones. In this sense it resembles an embryonic structure. Hyaline cartilage outside the joint cavities is surrounded by perichondrium, and this is continuous with the periosteum of the adjacent bony tissue. Like the latter, perichondrium is made up of dense white fibrous tissue, with some yellow elastic tissue, cartilage cells, and many cells not to be distinguished, structurally, from fibroblasts. The cells of the layer of the perichondrium nearest the cartilage are small, capable of rapid division, and important in the processes of repair. This layer has been called the chondrogenetic layer because of these traits. All gradations in cell type between these small cells and the larger, typical cartilage cells are found in the perichondrium. Typical cartilage cells occur in small groups of two or three or more, surrounded by a dense, hyaline matrix. These cells are usually flattened on one or two sides and they contain a few fatty globules and mitochondria of granules, rods, or wavy lines. They have vesicular nuclei with one or two nucleoli. Frozen sections show the cells filling the cavity in which they lie, but slides prepared by any method which requires dehydration shows them lying in a cavity which they do not fill. (This is due to the fact that the cells yield relatively more water in dehydration than does the matrix.)

The matrix is produced by the cartilage cells, and it increases steadily in amount until the cells are unable to secrete further against the surrounding pressure. If the matrix is removed from the vicinity of cartilage cells, they continue forming new matrix for a considerable, but not an interminable, period of time. Repair is possible because of this continued ability of cartilage cells to form new matrix, as well as to their ability to divide rapidly after the tissue has been injured. Cartilage cells may continue to form matrix in abnormal conditions which prevent or inhibit the growth of bone, as in rickets and in certain types of syphilitic osteochondritis.

Periosteal and synovial tissues are, for the most part, without blood vessels. The circular artery surrounds many joints just outside the re-

flection of the capsular membrane. Its capillaries give off lymph which is capable of carrying strains into the synovial fluid. The blood plasma of the capillaries supplies lymph which feeds the tissues of the joints. These arterioles are well supplied with vasomotor nerves. The capillaries show occasional nerve endings identical in structure with the vasomotor nerve endings. The red bone marrow of the bones entering into the formation of the joints, as well as the joint surfaces, are supplied with medullated nerves which seem to be afferent in function.

The spinal segments from which are derived the visceral efferent nerve impulses controlling the circulation of the blood through the tissues nourishing the joint, receive the visceral afferent nerve impulses from the joint and from the bones entering into the formation of the joint. The osteopathic relations of these anatomic facts are self-evident.*

Under normal, or only slightly disturbed relations, the circulation through adjacent tissues provides abundantly for the moderate needs of the relatively sluggish metabolism of the cells making up the tissues of the joints. The tissue fluids circulate, slowly and yet efficiently, from the capillaries, through the lymph spaces of the cartilage and the synovial membranes of the joints, and back to the vicinity of the capillaries, carrying nutritive pabulum, oxygen and such other materials as may be required for metabolism to the living cells of the joint tissues, and carrying the waste products of their katabolism to the capillaries, to be taken up into the blood stream, or they may be carried in the lymph spaces, ultimately to reach the venous blood stream and to meet the usual fate of katabolites of living cells.

Under circumstances too greatly abnormal, this circulation of the blood is not sufficient to meet the demands of the articular tissue cells, or the blood carries too great an amount of infectious or toxic substances to these relatively inactive cells. In the latter case, some of the pathological toxic or infectious joint conditions occur; these are well described in ordinary textbooks on pathology.

The existence of a reflex arc formed of afferent nerve impulses from the joint and related bones to the spinal cord, the vasomotor nerve centers in the cord, the white rami communicantes, the sympathetic ganglia, the gray rami communicantes, and the sympathetic nerve fibers to the blood vessels supplying bone cartilages and joint tissues is well known. This reflex arc is subject to interference, under certain abnormal conditions, by nerve impulses from other reflex arcs which involve the same spinal segment. The sympathetic ganglia and the nonmedullated nerve fibers are subject to the abnormal influences of changes in the chemical and the physical character of the fluids through which they pass, including edema, acidosis and various other abnormal conditions.†

*According to Head's law, the same spinal segment which supplies the joint, supplies also the muscles which move the joint, and the skin over the joint. This law applies to motor, sensory and vasomotor nerves. Though not without certain exceptions, Head's law is significant.

†The passive congestion, the edema and the subnormal nutritional conditions of joints whose nervous connections have been disturbed by casts, bandages, and abnormal conditions of gravity during the repair of bone fractures or of dislocations is well recognized. Surgical procedures are planned to minimize abnormal nervous conditions as thoroughly as is practicable, for this reason. Less thoroughly recognized is the fact that the nutrition of joints may be disturbed by the chronic effects of less severe disturbances of the same nature.

SYNOVIAL MEMBRANES

The synovial membrane, so-called, lines the joint cavities and is reflected over the structures which are found within these cavities, such as ligaments or fibrocartilages. It is not an endothelial membrane; it is not properly a membrane at all. The cells which occupy the joint surfaces are not like endothelial cells in structure, secretory activity or embryonic development. It may be called a membrane for convenience but its true character, that of modified cartilage, must be kept in mind in every consideration of its pathological reactions.

The structure of synovial tissue varies somewhat according to the nature of the subjacent structures. In all cases it is composed of cells of irregular form and relationships, embedded in a collagenic matrix. When the underlying structures are of fatty or areolar connective tissue, the synovial membrane is rather thin and is rich in cells. The edges of the cells do not meet evenly and they do not form a pavement; they often branch and are always embedded in the matrix in rather an irregular manner. They occupy somewhat different levels within the matrix, though they may form a layer-like, irregular arrangement only one or two cells in thickness. Such a membrane, with its loose, soft substratum, is not subject to any considerable pressure.

The synovial surface overlying dense fibrous tissue, subject to considerable pressure, shows more abundant matrix and fewer cells; the cells are arranged more irregularly than has been described for the synovial surfaces over fatty or areolar connective tissues. The cells occupy a deeper layer; this may be several or even many cell-diameters in thickness. The matrix of such a synovial surface is abundant and it contains many collagenic fibers, mostly arranged parallel with the surface of the joint. The cells are often found in small groups, like other cartilage cells, in the deeper layers of the synovial surface of this type. The long axes of the cells usually lie parallel with the collagenic fibers, and thus with synovial surface.

The synovial membrane thins out and finally disappears toward the central areas of the joint, leaving only unmodified, or slightly modified cartilage in the surfaces exposed to greatest pressure. Generally speaking, the greater the amount of pressure upon any synovial area, the greater is the amount of matrix, and the greater is the resemblance to typical cartilage. The less the pressure and the greater the amount of friction, the more membrane-like is the structure of the surface. These relations are, apparently, of functional origin and they are subject to variations with varying degrees of freedom of motion within the joint. The walls of the synovial cavities occasionally found within the intervertebral disk, in the human subject, show very scanty cells, abundant matrix and only slight resemblance to true membrane.

These differences between the peripheral and the central areas of joint surfaces are important. Cartilage of typical structure is notably slow in reparative processes, and these are not always complete. In perichondrial and synovial tissues, repair

is usually more rapid and more nearly complete. This tendency to repair may be extravagant and harmful when chronic irritation or repeated injuries occur, causing proliferation which may lead to lipping and finally to loss of function of the joint.

SYNOVIAL FLUID

The character of the synovial fluid is an important factor in determining the manner in which joints react to injuries or infections.

The synovial fluid is formed by the surrounding cells, but the exact method has not yet been determined. The discharge of vacuoles in the cells of the synovial membranes into the joint cavity has been reported. The presence of goblet cells in the peripheral tissues of the joint has been reported, denied and again reported, by several authors. We have not found goblet cells in the synovial surfaces in rabbits at Sunny Slope. There is no doubt that cells wander from the fluid into the tissues and back again, at least under conditions which seem to be practically normal. The extremely slow process by means of which this fluid is formed under normal conditions renders its study difficult.

The composition of synovial fluid gives little help in the study of its origin. It is very slightly more alkaline than the blood plasma of the animal, according to several authors, though according to Key there is little or no difference in the p^H of the two fluids. It contains a substance resembling mucin, a trace of albumin, a variable amount of fat, some inorganic salts and extractives, these substances varying slightly but apparently not significantly. The fluid removed from the joints of animals immediately after death contains about two hundred cells per cubic millimeter; these include cells of synovial origin for the most part, and they seem to be phagocytic. In abnormal conditions these cells are increased considerably, varying in number and in differential count according to the cause of the injury, the nature of toxic irritants or the type of infectious agent present. The normal synovial fluid in the living animal probably contains extremely few red blood cells or none, though it is impossible to secure this fluid without at least a possibility of contamination with blood, either by injury of the capsule or by the tendency to diapedesis caused by the necessary manipulations.

REGENERATION

The reparative qualities of synovial surface were studied by T. G. Fischer. According to his reports, bits of synovial membrane separated from the surface of the joint and allowed to remain therein tend to become attached to some portion of the synovial membrane. In this location they set up inflammatory reactions, with exudate and the growth of cartilage, so that the original tissue becomes surrounded with layers of cartilage. If this mass be again removed, experimentally or as a result of the abnormal pressure relations within the joint, it may increase in size although lying free within the joint cavity. These experiments show that the synovial fluid is nutritive under such conditions, and they explain the persistence and growth of loose bodies within joints.

The growth of the minute fatty pads found within the lesioned joints of certain laboratory animals at Sunny Slope is explained by this nutritive quality of the synovial fluid. In the experiments of Fischer, as in lesioned joints, the synovial fluid may be slightly abnormal, but it seems improbable that any marked variations from the normal constitution of the synovial fluid would occur in such circumstances.

The synovial membrane is capable of regeneration of considerable amounts of its substance. Key and others have studied the method of this regeneration. Removal of part of the synovial membrane in the joint, under aseptic conditions, is followed by effusion of blood into the joint cavity. In the rabbit this is followed by the development of a leukocytic membrane. Within about two days this is absorbed, leaving the joint surface covered with fibrin and cells. In Key's rabbits, the connective tissue cells of the vicinity grew larger, assumed the appearance of fibroblasts, and proliferated rapidly. The layer of fibrin was invaded by these cells. The blood vessels increased in number and granulation tissue was formed. The fibroblasts grew along the surface and formed a new membrane, thicker and more richly cellular than the membrane which had been removed from the normal joint. Collagenic fibers were formed. The new, thickened membrane was condensed. During this process the fibrin, blood, unused cells and debris were removed by macrophages. Probably some absorption of soluble debris occurred. These processes occupied about two months. During the later weeks the membrane became more and more nearly identical with normal membrane which had been removed. For details of the various processes the original reports of Key should be consulted.

CHANGES RESULTING FROM ACUTE LESIONS

The changes which occur in the synovial membranes and the synovial fluids as a result of sprains or strains vary according to the severity of the injury. Strains associated with no evidence of gross injury to the ligaments or the periarticular tissues occur frequently, and are characteristic of those vertebral strains commonly called vertebral lesions. The pathological changes occurring in experimental animals have been described in several reports from Sunny Slope laboratories.

In such cases a large animal, such as a rabbit, is lesioned by means of any one of the gentler methods. A lesion so produced is palpable and, if the animal is permitted to live, it usually persists and causes symptoms which are typical of a lesion affecting such a spinal segment. If the animal is killed immediately after lesioning in this manner, the tissues and the synovial fluid of the affected articulation show no gross evidences of injury.

If the rabbit is allowed to live for an hour, then is killed and the tissues examined, some changes are recognizable. The affected joint shows increased freedom of movement, and there is some increased redness of the subjacent bony tissue and of the periarticular tissues. The trace of blood which may be found in the synovial fluid in such a case is not more than is found in the synovial fluid of a normal animal. (The removal of synovial fluid from the articular surfaces of a rabbit is often associated with some contamination with blood, whether the joint is perfectly normal or not, because of the anatomical relations of the joints.)

Two hours after lesioning, there is palpable

edema around the joint. The flexibility of the joint is greater than before lesioning. If the rabbit is killed and the tissue examined at that time, there may be no recognizable gross changes around the joint. Microscopical examination of slides made by freezing show the edema and considerable crowding of the blood vessels with cells. The normal peripheral plasma layer of the capillaries is almost or quite absent. Slides made by any method which requires dehydration rarely show any perceptible changes.

Twenty-four hours later, palpable edema is further increased. Flexibility of the joint is lessened slightly, apparently as a result of the edema. Microscopic findings are not perceptibly changed, except that endothelial cells have immigrated into the synovial fluid in considerable numbers. There is no evidence of hemorrhages per diapedesin on this day. (Accidental contamination of the synovial fluid with blood cannot be ruled out completely.)

On the third day, palpable edema is increased. The synovial fluid shows brownish or reddish color and gives a chemical reaction for blood (benzidine test; guaiac test). Fibrin is abundant in the synovial fluid, which is thereby made highly viscid. The amount of synovial fluid is perceptibly increased. Cells of the synovial membrane and the subjacent cartilage show karyokinesis, not abundantly. During the fourth to the seventh day, karyokinesis increases and the characteristics of chronic inflammation follow.

CHANGES DUE TO CHRONIC LESIONS

The changes which follow strain of long-standing are well illustrated by the bunion. This common lesion has an insidious origin, usually not associated with the phenomena of acute strain at any time. While its pathogenesis has not been satisfactorily described, it may be stated that it is always due to constant and moderate pressure associated with structural disturbances in adjacent tissues. The changes in the joint and the surrounding tissues are gradually initiated and gradually increased in severity.

The synovial fluid increases slowly in amount during early weeks. The bursa increases in size and its fluid increases in amount. Both these fluids become slightly brownish and give a reaction for blood; both increase in viscidity and in fibrin content. In bunions of long-standing there may be a clot formed and this may become organized, with the development of small masses of connective tissue within the joint cavity. These increase the deformity and exacerbate the symptoms and the pathological changes. In later months the synovial fluid diminishes gradually.

The periosteum thickens. The areolar tissue around the joint shows hyperplasia. The skin over the joint thickens; probably this is partly due to pressure upon the tumor-like projection and partly to the direct influence of the lesion.

The abnormal position of the metatarsal bones exerts a steady and abnormal pressure upon the adjacent tissues. Secondary lesions of other bones of the foot follow, these being subject to variations dependent upon individual conditions of structure, custom, footwear, nutrition and other factors.

CHANGES DUE TO VERTEBRAL LESIONS

The changes associated with chronic strains of the vertebræ are less noticeable than are the changes associated with a bunion for several reasons. Vertebral joint surfaces are not well represented in sensory pathways to the cerebral cortex; their disturbances do not arouse conscious sensations so quickly or so vividly as do disturbances in the joints of the feet. For all these reasons, and probably others, vertebral strains are not apt to be associated with such marked and immediate sensory disturbances as is the case with lesions of the feet and hands. They are, therefore, more apt to be allowed to persist until some resulting symptoms lead to their diagnosis and treatment.

The changes associated with chronic vertebral lesions in laboratory animals have been reported. The changes which have been described for the acute vertebral lesion in the rabbit pass gradually into the chronic stage. The congested area around the lesion changes slowly from the brilliant tint of acute to the purplish tint of chronic congestion. Sections made of the region of the circular artery, by freezing methods, avoiding dehydration of tissues, show the capillaries crowded with cells, with occasional hemorrhages per diapedesin in various stages of recent bleeding, partial coagulation of the blood, partial degeneration and complete degeneration of the red cells, early and late organization of the minute clots and the development of minute scar-like areas of connective tissues. These changes occur gradually during the two to four years after lesioning, in rabbits, and they finally diminish the flexibility of the joint considerably.

Changes within the joint are not less serious. The presence of a small amount of blood in the synovial fluid during acute strain has been described. The increased viscidity of the synovial fluid due to increase in its fibrin content is associated with the presence of blood cells. This increased viscidity may limit the motion of the joint in some degree. Coagula are occasionally found; these may organize, or they may be digested and absorbed. They may adhere to the surface of the synovial membrane, become covered with cartilage or synovial cells, and they may be dislodged, thus forming minute intra-articular masses. According to T. G. Fischer, these may become either fatty pads or minute masses of fibrocartilage. Minute fatty pads have been found in lesioned articular cavities in certain rabbits at Sunny Slope.

In the human subject the amount of rigidity in the joints affected by an old lesion may be so great that actual ankylosis is suspected. In an experimental animal this may be true also. On microscopical examination, fibrosis may be marked and there may be a few crystals of calcium carbonate, calcium phosphate and other salts in the fibrotic area. In one human subject nearly sixty years of age the fibrotic tissue around an old lesion contained masses of urates about one millimeter in diameter. This condition has not been reported for animals.

Fibrosis is most marked in the capsular ligament, but is occasionally recognizable in any ligament of the joints affected, and it may affect also the tendons of the muscles moving the joint. Those tendons whose attachment is nearest the joint are the ones most frequently and most seriously affected by fibrotic changes.

The synovial membrane of the chronic lesion shows slight irregular thickening, most marked upon one side and probably related to the character of the lesion. The synovial fluid is usually unchanged or only slightly diminished in young experimental animals. The older the animal when the lesion is produced, the greater is the tendency to a diminution of

the synovial fluid. With old age, the lesion produced in youth may finally be associated with diminished synovial fluid or even none, so that the lesion might be located from this characteristic alone.

The capsular ligament is usually thickened irregularly, and it is not consistently either those that are subjected to the greatest tension or to the least tension, that are most affected. The other articular ligaments are usually thickened, though occasionally one ligament subject to tension may seem thinner than normal. This is not marked nor invariable. The capsular ligament is occasionally the seat of small petechial hemorrhages; the other articular ligaments are rarely so affected.

The periosteum is variously affected, according to the age of the subject. The younger the child or the animal, the more marked are the apparent or the real changes in the periosteum, especially of the articular processes. Both recent and chronic lesions show these effects. On palpation or lesioned vertebræ their articular processes seem enlarged, and this enlargement may be more marked upon one side than upon the other. This finding is constant in young subjects, animal or human, and often it may be noted in older subjects. The older the subject the less constant and the less marked is this finding on palpation.

When an animal showing this apparent enlargement of the articular process is killed and the tissues examined, it is found that the enlargement is really due to a swelling of the periosteum over the articular processes and around the insertion of tendons. The amount of swelling is more marked on the side of the vertebra subjected to the most marked stress on account of the lesion. It is not found in animals which have not shown the characteristic findings on palpation.

The ligaments of a joint subject to chronic strain shows a variable degree of connective tissue hyperplasia. This process leads to diminished elasticity with increased extensibility. These changes seem to be exaggerated if there are any conditions of disturbed nutrition affecting the tissues locally or generally.

These pathological processes increase gradually as long as the lesion persists, or as long as the individual lives, but the joint does not become completely immovable, nor is the possibility of at least a partial restoration to normal function completely lost, unless some further pathogenetic influence occurs. The joint affected by a lesion is manifestly subject to infection, chronic toxemia, metastatic malignancies. Correction of lesions subject to such conditions is not to be expected, and would not be attempted by osteopathic physicians.

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Meeting the Demands of Life Between the Ages of 18 and 25

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During the three or four years immediately following the Great War universal attention was directed to youth in problems of physical rehabilitation, service-placement, compensation and general readjustment of disturbed social and economic conditions. The flow of youth to colleges in unprecedented numbers was consistent with the increased proportion of opportunities for the young in commercial, industrial, professional and general fields. There followed nearly a decade in which overexpansion, inflation, production far beyond demand, speculation and other unsound measures had their fling. Then came the crash and hard times. We now realize that we were trying to beat the moral game of life. The depression seems to mark the end of a grossly material age, an age that put knowledge above wisdom.

We set this background merely as a prelude to our topic concerning the demands of life upon the youth of today. We desire to deal with the present, its tangible things, its problems and its ideals. But we propose to keep in mind this antecedent decade of imbalance and disproportion for its possible telltale effects upon the youth of today especially from the standpoint of his mental outlook, his grasp of moral and social matters and his individual economic problem. We must remember that the experiences and the philosophy of one decade may affect the attitude and the common sense of the next. It is dangerous to impair or crush the interests and the sentiments of the sentimental period of life.

We believe that simple faith is inherent in youth. In times of economic stress and altered social conditions we must see that this heritage is not lost. There must be restored for youth, in home and school a realization of the great purpose of life.

Before all else in our approach, we wish to establish our purpose of making frank analyses of the classical considerations attendant upon the adolescent period of life. Thus we will first take up various physical aspects and conditions and follow with mental, moral, social, economic and political problems.

PHYSICAL CONSIDERATIONS

In this important category we will not be privileged to draw particular attention to conditions which may be stamped at this time as resulting from the duress and strain of the past two or three years. Rather would we invite immediate consideration to the premise that various constitutional ailments may be expected to appear in later life as a consequence of the hazards and privations of this strenuous period. In this connection Otterbein Dressler,[1] Professor of Pathology of the Philadelphia College of Osteopathy, in a recent address before the College faculty, said:

"The period of life between 18 and 25 presents a fertile field for the development of disease. The young adult coming in direct combat with the conflicts of life is a prey to the elaboration of conditions and complexes, which, if uncorrected, become the basis of physical and [psychic] pathology."

We will first study records of the Philadelphia College of Osteopathy, its hospital and clinics and other official documents for figures and facts which may give valid observations pertaining to the physical impairments and involvements encountered between the ages of 18 and 25 years. We will interest ourselves with statements and supporting statistics from authorities at these institutions, on the frequency of occurrence of disorders during this period.

During the calendar year, 1932, the Osteopathic Hospital of Philadelphia took care of 1,777[2] inpatients for a total of 20,710 patient days. Of this number, 395 ranged between the ages of 18 and 25 years, accounting for a total of 3,867 patient days. Thus, 23 per cent of all patients in the hospital during the year were young adults and they accounted for 18 per cent of the total hospital service. Tabulation of these 395 cases reveal the following figures:

Blood Diseases	1
Bones, joints, cartilages (fractures, dislocations, major lesions)	22
Breast	3
Circulatory disorders	6
Digestive disorders	64
Ear	4
Eye	3
Hernia	6
Infective diseases	11
Injuries (physical agents)	2
Lymphatic system	2
Metabolic disorders	6
Muscles, tendons	1
Nervous system	9
Nose and throat	82
Obstetrical	124
Poisoning and intoxication	2
Reproductive disorders	58
Respiratory disorders	23
Skin	1
Teeth	1
Tumors	12
Urinary disorders	20
	395

Aside from the volume of obstetrical cases, attention should be focused on the prevalence of nose and throat, digestive and reproductive disorders and injuries to bones and joints. There is a predominance of tonsillar, appendiceal and uterine conditions, especially cervical, in the first three categories, and of fractures in the last. Let us keep these "headliners" in mind for later reference. The hospital records show that of 51 deaths occurring during the year only two were within our age limits; one from postpartem hemorrhage and shock and one from acute cardiac dilatation in conjunction with a cystic tumor and postoperative peritonitis. Thus the death rate of young adults was .005% as against the hospital death rate of .028% for all ages. Of nine autopsies during the year, none were on young adults.

We will next inspect the files[3] in the General

Clinical Department of the College. What proportion of subjects range between 18 and 25? We remember that during the year, 23% of all patients in the hospital were young adults, accounting for 18% of the hospital patient days. In the clinic we picked up at random a block of summary cards of patients entered since September 20, the opening of the department for the college year. The number of cases was 686, of all ages, of which 143, or 21%, were between 18 and 25, as reported by Dr. E. Boone of the Research and Statistical Division of the Clinic.

With a view to further validation of the proportion of clinic patients of ages 18 to 25, we counted all admissions[4] to the General Clinic on January 13, 1933. There were 182, of which 16 were first visits. Of the 16, only 2 were of age 18 to 25, but of the total 182 patients, 33 were within our limits. Thus on a single day in the General Department, 18% of the service was rendered to young adults.

Turning next to the student body of the college, we asked[5] information on the hospitalization of the individual between ages 18 and 25. Of 319 students replying, 69, or 21%, have been victims of conditions requiring hospital care. Of this number tonsils and adenoids account for 21, appendectomy for 15, acute infections 6, herniotomy 4, accidents 3, with the remainder of miscellaneous character.

Turning next to the office of the Health Service for students, we find from the records[6] that 103 students, or 26% of the student body, this number being confirmed by questionnaire filled in by students on this subject, took advantage of this service during the three months period (Sept. 20 to Dec. 21, 1932.) The number of visits and administration of osteopathic treatment to students during the three months totals 1,127, of which 920 took place in the offices of the Physicians-to-Students in the College Clinic and the remaining 207 in out-patient work, i.e., in home visits. Sixteen students in the period noted required hospital care for a total of 130 patient days. These hospital cases comprise appendicitis 5, tonsils and adenoids 3, tonsillitis 1, dermatitis 1, acute gastritis 3, Pott's disease 1, herniotomy 1, removal of bone 1. This Student Health Service office, which takes care of only general osteopathic considerations and treatment, during the same period, referred 23 cases to the X-Ray Department for examination, 60 to the Ear, Nose and Throat Department, 16 to Surgery (as noted above), 7 to Genito-Urinary, 3 to the Chest Department, 3 to Proctology, 7 to Dermatology, 3 to the Department of Metabolic Diseases. Thus a total of 122 student cases appear to have presented problems and conditions warranting special department consideration.

The files[7] in the College Administrative office pertaining to student attendance, show 46 absences from school due to sickness during the three months period (Sept. 20 to Dec. 21). Of particular significance here is the finding of a predominance of acute coryza and la grippe. Twenty-three cases, or 50% of the total, are classified under these columns. In this connection, in his semi-monthly report to the dean, Angus J. Cathie,[8] physician assigned to out-student health service, reports:

Since January 1, the most frequent cause of absence from classes has been la grippe. Reported and treated at the onset, these cases run over a period of three to four days instead of the protracted period seen when cases are not reported and osteopathic attention is not given.

Two months ago several cases with symptoms suggestive of la grippe appeared but with a variation so far as temperature is concerned. It was subnormal, 96° to 97°, and the ability to fight the condition seemed less than in typical cases running a temperature.

Disorders of the digestive tract occupy next place in frequency of occurrence as causes of student absences. George S. Rothmeyer,[9] Professor of Gastro-Enterology, remarks:

There is a decidedly augmented proportion of functional disturbance cases of the gastro-intestinal tract in young people due to excesses, faulty diet and alcohol laying the path for more severe inflammation and other conditions. Constipation stands out conspicuously as a problem to be reckoned with in this period of life.

D. S. B. Pennock,[10] Chief Surgeon to the Osteopathic Hospital of Philadelphia, offers an important finding in connection with this tract. He says:

During the student age the commonest surgical disease is unquestionably appendicitis. Appendicitis is primarily a disease of young active life. In considering appendectomy we see the acute cases with their serious symptoms; another class of case is the chronic, some with a history of one or more acute attacks, some with a chain of symptoms more or less removed from the appendix. By study with the x-ray it has been definitely proven many times that chronic appendicitis may cause reflex disturbance of any organ in the abdomen and affect digestion in a deleterious manner from the stomach to the rectum.

Now we come to the physician in charge of student welfare. Shortly following matriculation in late September, 1932, 125 new matriculants were given physical examinations with particular attention to the spine, heart, lungs, and genito-urinary tract. These examinations were made by staff physicians and internes under supervision of department heads. The files[11] of Director D'Eliscu show that of 125 examinations of the chest, 15 heart cases were brought to light and referred to the Department of Chest Diseases. In connection with this general physical examination of all new students, Ralph L. Fischer,[12] Professor of Practice of Osteopathy and Clinical Osteopathy, writes as follows:

"At this period of life, pathology left in the heart following acute infections of childhood, makes its presence, symptomatically, evident. During this time the average young boy or girl discontinues active participation in competitive exercise; the heart, developed to accommodate itself to greater demands, suddenly has a let down, and the musculature becomes flabby and shows the first signs of myocardial degeneration. We must remember that cardiac musculature is subject to the physiological laws that govern skeletal muscles. With this combination of events, one can readily perceive the necessity for painstaking study of the hearts of college students, particularly those participating in athletics."

The recorded heart findings in the 15 cases specified sounds, such as accentuated, prolonged, transmitted, roughened; murmurs; arrythmias; enlargements; displacements; poor muscle tone and quality.

Examination of lungs disclosed 6 cases which aroused concern and which were referred for further study and consideration. One was an established case of tuberculosis and the remainder suggesting involvement, bring an important speculation from Ralph L. Fischer in his report:

"Tuberculosis will probably increase in incidence during the next ten years, due to present economic conditions with resultant undernourishment and starvation. Carelessness in personal hygiene, lack of sufficient rest and high pressure living, predispose this age group particularly to the occurrence of coughs, colds, influenza and pneumonia."

Examination of the genito-urinary tract of the 125 new matriculants showed 3 cases of hernia, 5 varicoceles, 4 cases of urethritis, 2 dysmenorrhea. Supplementary to this report on the genito-urinary tract, we find 288 student cases covered by questionnaire prepared by H. Willard Sterrett,[13] Urologist to the Osteopathic Hospital of Philadelphia, answered January 12, 1933. Four subjects admit having had gonorrhea, one chancroid, two have had passage of blood from the genito-urinary tract, one kidney removal, one pyelonephritis, one prostatectomy, one case of uremia.

Coming finally to the important osteopathic considerations of spine and rib examinations of the 125 new matriculants, painstaking charting of all findings of every character was effected. Only 27 of the total number escaped record of objective conditions. According to the report of C. Haddon Soden, Professor of Technic, who supervised a staff of 12 qualified examiners, the most obvious and frequent finding centered about the mid-dorsal region. We are pleased to quote Dr. Soden:[14]

"In the examination of these cases as well as in hundreds of patients of similar age, I have been amazed at the high number who have a lordosis, or group extension, in the middle dorsal area and a kyphosis, or group flexion, in the lumbar area. The greatest muscular changes are noted at the middle and lower dorsal levels. I consider the chief structural defect, and one which is greatly overlooked, the fallen arch, which is a contributing factor in the above."

George S. Rothmeyer,[15] Associate Professor of Technic, in summarizing his report on the examinations conducted under his immediate direction, calls attention to "lack of symmetry" as the outstanding feature of the findings. Dr. Rothmeyer made the following statement:

"My most common finding in these young people is a tilting of the sacrum showing more concavity on one side of the lumbar region of the body, with a variance of the levels of the inferior angles of the scapulæ, and a difference in the concavity of the two sides of the neck."

Let us return to the General Clinical Department for records of examination of the spines of clinic patients. Frederick A. Long,[16] Professor of Principles and Research, reports on the charts of a selected number of patients for December, 1932:

"An analysis of osteograms of 75 clinic patients of both sexes between the ages of 18 and 25 show that at these ages lesions of the sacro-iliac, 5th lumbar and 4th lumbar segments are commonest. Sixty-four per cent of the total showed sacro-iliac lesions, 28% 5th lumbar and 23% 4th lumbar lesions. Next come the 9th thoracic and 1st lumbar with 17%.

"Lateral curves of more than 4 segments were present in 10% of the cases and of these 75% showed involvement of the 5th lumbar, or sacro-iliac. The curves involved the thoracic region principally, some including as well, parts of the cervical and lumbar regions.

"Rib lesions were more in evidence in males. In both sexes they include the first 6 characteristically, lesions below the 6th rib being quite uncommon. The greatest number were those of the 1st; the group 3, 4, 5, 6 being next most involved."

Dr. Long's department at the Philadelphia College has recently completed its initial investigation, using 74 students of the college as subjects, while determining changes in blood pressure occasioned by change of position from "sitting" to "supine." The conclusion reached, as reported in the February issue of the *Osteopathic Digest* is that there is a tendency for fall of blood pressure in the supine, when compared with the sitting, position. This is most marked in the diastolic reading.

Dr. Long states that an early consideration of his department will have to do with Posture. He will explore fields bordering on relationship between spinal lesions and various postural types, at the same time endeavoring to establish a graphic method of recording these conditions and relationships. The cases of S.S., male, aged 24, art student and others reported in a recent pamphlet of the New York City Clinic covering various case reports studied and followed through by L. M. Beeman and C. S. Green, have in no small measure been instrumental in inspiring consideration of postural relationship as a subject for research and further clinical investigation in the Philadelphia College.

In the field of Neurology and Psychiatry, J. Frank Smith,[17] Professor of Clinical Neurology, reporting for this special clinical department of the institution for the calendar year 1932 pays particular attention to epilepsy appearing between the ages of 18 and 25 as a result of traumatic injuries to the head, encephalitis, meningitis, etc. Five students suffering from this condition are recorded in the files of the college office. Other citations have to do with spasmodic torticollis, herpes zoster, Bell's palsy, neuritis, tic douloureux. In the psychiatric field he refers specifically to cases of dementia praecox, hysteria, anxiety neurosis and the psychoses.

Sarah W. Rupp,[18] Professor of Neuro-Anatomy, invites consideration of the establishment of a mental hygiene clinic at our college. Dr. Rupp writes on January 13, 1933:

"Preventive medicine is the aim of the medical world today. Mental hygiene is becoming more and more important as a preventive measure in the so-called mental and nervous diseases.

Recent studies and research tend to establish the principle that personality traits are *consistent and organized*, and depend for their interpretation upon the make-up of the person as a whole. Therefore the analysis of personality, an examination of the

processes underlying character formation, development of symptom and personality traits, is of utmost importance in the adolescent. The discovery of methods which will enable us to diagnose incipient psychosis from functional maladjustments and as a result limit the mental disorder in the community, will result in an immense social gain."

Undertaking now to pick up the momentum centering in so-called "headliners"—tonsil, cervix and fractures—we will give first attention to the tonsil. Having in mind 82 of a total of 395 hospital subjects in nose and throat categories, the great number of student cases referred to this department, and the fact that this is the largest operating special department in the College Clinic, we will quote Wm. Otis Galbreath[19] from the report of his department of Otolaryngology for the calendar year 1932. Dr. Galbreath writes:

"Acute cryptic tonsillitis is of particular importance during the ages between 18 and 25, due to the tendency of the inflammation to extend to the mid-ear by way of the eustachian tubes; also it may cause acute articular rheumatism, endocarditis, nephritis and other affections remote from the tonsils. Further, recurrent attacks of acute tonsillitis result in a chronic cryptic tonsillitis with its complications such as acute and chronic suppurative otitis media, chronic catarrhal otitis media and such systemic conditions as arthritis, rheumatism, endocarditis, myocarditis, anemia, chronic coughs, and neurasthenia."

Dr. Galbreath in reporting on otology has this to say:

"Acute otitis media is of frequent occurrence during this age. It is usually an extension from the nasopharynx by way of the eustachian tube and is subsequent to such abnormalities as spinal lesions, structural deviations in the nasal chambers, and diseased tonsils. It is a frequent and dreaded complication during the course of scarlet fever and measles, and is sometimes associated with typhoid fever, pneumonia and grippe. Acute middle ear disease often follows swimming and diving when there has been strangling and gagging while the head was submerged, in this way permitting water contaminated with bacteria to enter the eustachian tube. Recurrent middle ear disease is practically always accompanied by diseased lymphoid tissue in the nasopharynx and fauces. Mastoiditis is in almost every instance consequent upon acute otitis media."

Next referring to the prevalence of reproductive disorders and again having in mind 58 house cases in this category out of 395 total cases between the ages of 18 and 25 aside from the 124 obstetrical subjects, we refer to an address by E. G. Drew,[20] Professor of Gynecology, of the hospital staff, January 10, 1933. Dr. Drew spoke of the female tract as a problem of the general practitioner. The importance of the cervix as a focus of infection was stressed, referring to various ovarian and tubular conditions as impossible without prior cervical involvment. Dr. Drew made special mention of gonorrhea as an etiological factor.

H. Walter Evans,[21] Professor of Obstetrics, in discussing this subject says:

"The so-called leukorrhea that occurs so frequently in young females of this age should always be investigated. A cervical infection of some type will usually be discovered as the cause for the discharge. This inflammation is not always of venereal origin.

"Very frequently it will be found that these infections come from fecal contamination. Such infections should be immediately eradicated as a protection to the upper genital tract. Chronic infections of the urinary bladder, which are not infrequent at this period, are also often of bacillary origin. These respond readily to local treatment with silver preparations.

"When there is a sudden cessation of the menses in young females, whose menstrual history has been previously negative, the possibility of pregnancy should be considered, regardless of the social status."

With final attention on physical considerations directed to injuries, fractures and sprains, there appears to be little need for substantiating these items as common factors. In our operating and emergency rooms of the hospital, 733 cases classed under these heads were received and treated. D. S. B. Pennock,[22] Chief Surgeon, is authority for the incidence and occurrence of a major proportion of these in young people. Dr. Pennock in his annual report for 1932 said:

"Next after appendicitis come the injuries as a result of activities of youth, consisting of sprains and fractures. Of the fractures, those of the clavicle and Colles' fracture are the commonest. Among the sprains, those of the ankle and knee are seen most often at this age. Another condition that often shows itself at this time is hernia. In many cases while the weakness is congenital in its origin, the congenital weakness is not brought to the surface until during the period of great activity; the hernia gradually springs forward."

The conspicuous place occupied by hazards of athletic training and competition, in the picture of frequency of occurrence of conditions during our period of selection, is brought to mind, even in the operation under ideal conditions and circumstances.

Dr. D'Eliscu,[23] Director of Athletics of the Philadelphia College, who was manager of the American Olympic Swimming Team in 1928 at Amsterdam, Holland, has this to say:

"In spite of the physical perfection of Johnnie Weissmuller and Helen Meany, who are noted for their grace and aptitude, there was always something wrong with them, which needed attention. With Miss Meany it was either a sprain or strain in twisting, after leaving the board if she did not do her dive perfectly; therefore, she required very careful attention. With Weissmuller who swam every day as fast as he could, and still continues in this exercise, it was either his arms or his legs that needed treatment. I found that all athletes in the swimming world, regardless of physical condition, at some time or other between the ages of 18 and 25, are subject to some particular ailment due to constant pulling and stretching, sometimes overtaxing the physical possibilities of the body."

MORAL AND SOCIAL CONSIDERATIONS

The faculty of the Philadelphia College of Osteopathy realizes that there is a difference in many

respects between the students of today and those of a few years ago. This matter has been a subject of discussion at several of the general meetings of the teaching body as well as in various committee deliberations pertaining to scholarship, student attendance, living quarters, conduct, payment of fees and other similar matters, and especially from the standpoint of students reactions, both individual and group, to regulations, requirements, activities, increased opportunities and privileges, etc.

In brief, we observe that the average student today is much more serious-minded than his predecessors. The whims, the frills, the sentiments of former years in college life seem to have been pressed into the background. This condition is undoubtedly due to home conditions and influences over which the individual student has little or no control. Altered social and financial circumstances and conditions have caused responsibilities, worries and losses previously unknown in many walks of life. The sense, as well as in certain cases the weight, of such responsibilities have undoubtedly been reflected upon the minds of the newer generation.

We do not wish to convey the impression that the average youth is dispirited or hard; what we do wish to say is that he is more analytical, more frank, possibly more considerate as a result of altered social and economic conditions.

Before proceeding further in an appraisement of college youths, let us inspect certain facts having to do with the background of a great number of our students.[24]

Of 319 students canvassed by questionnaire, January 11, 1933, we find that the average age was 22½ years. Only 231 recorded that both parents are still living. In 56 additional cases, one parent is still living.

Next, in reply to our query on "time for recreational activities," apart from the curriculum, only 83 went on record as being able to avail themselves of such privileges. Asked concerning allowance or drawing accounts from parents or interested parties, the average for all purposes above tuition amounted to approximately $10.00 per week. A considerable number entered remarks touching upon vague minimums, ably expressed in one case, "the very least possible" and again "living on nothing at all."

More than 50% of the total number questioned are employed after school hours; for these, the average number of hours a day of employment was five. Cases are on record involving twelve or more hours employment at night. Although there are cases of skilled labor and professional occupation, by far the greater number of placements are in menial capacities.

Thirty-one of the 319 are married. There are 14 children accounted for in these married cases.

Seventy students of the specified number reported that they are related in some way to members of the osteopathic profession. These are accounted for as follows: mothers, 2; fathers, 14; brothers, 11; uncles, 18; cousins, 16; grandfather, 1; sister, 1; husband, 1; wife, 1; brothers-in-law, 4; aunt, 1. We enumerate this particular factor believing that it has a contributory bearing on the question of the general welfare of the osteopathic profession, inasmuch as a considerable number of these cases are known to be supported from the resources of these related practitioners.

Some viewpoint of the proportion of the economic strain upon families in general may be had from the books of the college bursar's[25] office, which shows that on the opening day of the college in September, 1932, set for registration and payment of tuition, only 260 students were in position to pay their fees in full. All others, approximately 140, were required to ask for special consideration. A greatly augmented personnel and social contact work was initiated in the college administrative office as a result of this condition. Students' stories of ability to pay on extended terms were heard and passed on. At the close of the first semester, with few exceptions, students had lived up to their promises, at what price and under what conditions of strain and privation, we can only estimate from chance revelations.

The moral of these citations is the happy finding that, in general, students of today are determined to carry on and have the courage as well as the spirit in the face of great obstacles to win their way.

Exactly how much do these young people today reflect the temperament, the character, the trend, the mind of the times? In some respects not at all; in others to a marked degree. Students are students in any period. The point is, however, that their views, whatever they may be, have a tremendous importance and influence on the thinking of those who follow. What was an isolated instance of revolt in 1929 is today common and taken for granted.

On canvass by questionnaire concerning use of alcholic beverages in any form, 282 students this fall gave replies as follows: frequent usage 12, occasional indulgence 175, and 95 made statement of total abstinence.

Two hundred forty-six of a total 257 questioned desire to pursue interneships upon graduation; 109 expressed intention of practicing in a large city; 162 in a small city and 27 in rural districts; 103 stated that they plan to specialize later on, if opportunity permits.

In affairs having to do with individual and group conduct we see little difference in the turn of years. Violations and infractions involving such things as cheating in examinations, gambling in the college building, disregard of the smoking ban, reports of drinking excesses, neighborhood escapades resembling "rowbottoms" are, of necessity, noted and investigated. The meting out of penalties and punishments is done with stern demeanor, but only after painstaking consideration of all factors of individual and institutional welfare. However, the number of these conduct problems is by no means great, nor are there many of serious nature. In general, student-body conduct is orderly and dignified. With understanding of requirements, with inconsiderable exceptions, students are conformists and are prompted by their better natures.

Academically, students in general are observed to be much more critical. They seem to accept traditions somewhat coldly, to approach their problems and assignments more seriously, yet with

notable display of sophistication and savoir faire in sporadic cases. Probably the presence of 156 students of previous liberal arts training and experience accounts for these tendencies. However, in scholastic matters, we must not leave unstated the fact that added requirements and less elastic regulations have not been established without due tolls. The numbers of students dropped from the college rolls for poor scholarship have increased in sensible proportions during the last five years.

In my opinion, there are clear evidences that young people are thinking their own thoughts about the great problems confronting the nation and the world, and that they are becoming vitally interested in their governmental agencies. War debts, prohibition, tariff, unemployment, taxation, balancing of budgets are common topics of the younger generation. They are alive to the current issues of the day.

In conclusion, we wish to reiterate an early observation in this paper to the effect that simple faith should be an inherent possession of youth. We should be careful to see to it that it is not impaired or broken. If it is not, we believe that youth can be depended upon to survive the exigencies of this or any period. And with a continued opportunity for clear thinking and clean sportsmanship, he may be expected to pursue a happy life with high ideals and cultivated mind.

SUMMARY

In scanning the institutional horizon for physical considerations incident to youth, it was observed that 23% of all hospitalized cases for a calendar year comprise subjects between the ages of 18 and 25 years. Throat, gastro-intestinal and reproductive disorders, together with impairments due to activity, predominated in the listings. Survey of a block of out-patient cases picked at random gave, for the number studied, a finding of 21% patronage in the clinic of persons within the age limits 18 to 25 years. Study of student hospitalization cases within these same years revealed 21% of the present student body as having required institutional care. Student health service statistics show that 26% of the student body this fall in a three months' period have been accorded professional service, with 16 students or 4% of the total body requiring beds in the hospital and with 122 office cases, or about one-third of the total group, presenting problems which warranted special department attention. That absences from school are caused most frequently by coryza and la grippe is shown by records of the college administration office. Heart and lung involvements were suggested as likely considerations for the future as a result of the stresses of the present day. Physical examination of all new students in the Department of Student Welfare brought to light important observations pertaining to spinal curves, asymmetry and general posture. In similar study of a determined number of clinical subjects, supplementary findings in connection with spinal studies were afforded by the Department of Osteopathic Principles and Research. A proposal from the Department of Neurology for the inclusion of a mental hygiene clinic in the institution's program of clinical activities was advanced as a conspicuous need for proper psychopathic management.

With courage and fine display of spirit, students are meeting the issues of the day while plodding their way meritoriously in scholastic matters. Their minds, their reactions, their grasp of moral and social problems, show departures from the older order but with unshaken faith in the major interests of life. They may be confidently expected to survive present exigencies with high ideals and cultivated minds.

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All men who love their craft, and who believe in it and live for it, are their own best critics.

STANLEY BALDWIN.

Acute Diseases of Children*

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The acute infections of childhood have as their one common complaint, fever. It is by far the most common single symptom met with in pediatrics. There are probably no more than two other conditions, hemorrhage and convulsions, that alarm parents as much as does a rise in temperature. When the physician is called in to see a child with a fever, he usually finds, upon questioning the parents, that they have no idea what is wrong. They only know that the child has been irritable and fretful all day, would not eat, and is hot to the touch.

The first thing to do, of course, is to ascertain the temperature. In children up to five years of age the temperature should always be taken per rectum. Taking it by mouth is unsafe because the child is apt to bite the bulb off, and unreliable because it is well nigh impossible to get a child to keep his lips closed for the required three to five minutes. Since it is impossible to keep the child's arm perfectly still, axillary temperatures are never to be depended upon.

Height of fever is not an indication of the severity of the infection or the gravity of the disease causing it. A child suffering from a gastro-intestinal upset may have a convulsion and run a temperature of 104° or 105°, while a child suffering from diphtheria or tuberculosis may have a temperature of only 100° or less. Whereas the former condition will probably be gone entirely in twenty-four hours as a result of a cathartic or enema, restricted diet, and manipulative treatment, the latter diseases need immediate and prompt attention to treatment and regime.

Having determined the temperature the next thing to decide is what are its probable causes. In children gastro-intestinal upsets are the most common cause of increase in temperature. Therefore, the physician questions the parents carefully as to diet and dietary indiscretions of the child, the presence or absence of vomiting, character of the vomiting (projectile or not), and description of the vomitus. Important also is information relative to the bowel movements, such as number in a day, character, color, odor, and consistency. Regardless of the fact that careful questioning along these lines may have revealed sufficient information to explain the rise in temperature, the next most common cause of fever in the child should be considered.

All children with fever should be suspected of being victims of one of the acute infections of childhood. Therefore, careful questioning should be done to elicit, if possible, exposure to some acute infection. It should be determined what childhood diseases the patient has had. Then a careful examination should be made to rule out or confirm the existence of an acute infectious disease.

Measles—

The one high point of diagnosis in measles is the presence of Koplik's spots. Koplik's spots can be observed best in bright daylight. The child should be taken beside a window and his buccal mucous membranes carefully examined. It is the failure to do this and the attempt to rely upon a flashlight examination that causes these spots to be overlooked so frequently. There may be but a few in the mouth or the entire buccal membranes may be studded with them, but they are present in ninety per cent of all cases of measles. Usually they are seen two or five days before the cutaneous eruption (usually two or three days before) and when found are pathognomonic of measles. They are not found in any other disease.

Mumps—

Two things have come to our attention concerning mumps. One is that acute cervical adenitis is most commonly confused with mumps. However, should doubt arise concerning the differentiation of these two conditions a white and differential blood count will be of great assistance. In mumps there is a low white count, even a leukopenia, with a marked increase in the lymphocytes and a decrease in the polymorphonuclear cells, while in an attack of acute cervical adenitis the exact reverse is true.

The second point of importance in dealing with a case of mumps is that orchitis is not the only complicating factor. Quite frequently acute pancreatitis is a complication. Pain in the epigastrium, fever, subicteric tint to the skin, and presence of fatty acids in the stool or steatorrhea immediately following or accompanying a case of mumps should always cast suspicion upon the pancreas.

Scarlet Fever—

Fever with an angry, fiery, red throat, posterior cervical glandular enlargements, and scarlet rash (slight or extensive) should always make one think seriously of scarlet fever.

Whooping Cough—

Of all the acute infectious diseases of childhood there is probably none that gives the physician more difficulty in diagnosing early than does pertussis. There are many, many physicians who refuse to differentiate whooping cough from bronchitis until the child "whoops." It is the belief of this writer that pertussis *can* and *should be* differentiated from bronchitis before the advent of the "whoop." Consequently, a few of the salient points shall be enumerated which should differentiate pertussis from bronchitis. First of all, the fact that the "cold" for which the child was brought in did not respond to treatment in a week or ten days. Instead it probably got worse despite the fact that the child had received daily treatment. This very fact should cause the physician to doubt his original diagnosis.

Then the cough should be given closer attention. This, at first, is a dry, irritating cough, but characteristically *worse at night*. It soon becomes "loose" and gives one the impression that a quantity of mucus is in the throat or bronchi, and yet on auscultation few, if any, rales are heard. In bronchitis, with a cough as severe as the cough of early pertussis, auscultation would reveal many rales of all types.

Likewise, fever is characteristically low or absent in uncomplicated whooping cough. But in bronchitis with a cough as severe as in pertussis, the temperature would in all probability be quite high.

Between the severe attacks of coughing in whooping cough the child, to all appearances, is perfectly healthy and apparently there is nothing wrong with him. In bronchitis with such a severe cough, the child is ill, irritable, fretful, and doesn't play as at other times.

In whooping cough the child early in the disease presents a red face and eyes that become reddened and watery during a coughing spell. This is not common in simple bronchitis.

Also if towards the end of the catarrhal stage or beginning of the paroxysmal stage, a tongue blade is placed on the posterior portion of the tongue and carefully lifted, it will be noticed that long stringy mucus is adherent to it. This is not seen in bronchitis.

And again, as in so many diseases, the blood count is of benefit and materially aids in diagnosis. It is the white and differential blood count that shows characteristic findings in pertussis. There is usually present in whooping cough a marked leukocytosis—the white count may go as high as 35,000 or 40,000 leukocytes per c.c. while in the differential count there is found a high and predominant lymphocytic count with a neutropenia, i. e., a dropping of the polymorphonuclear cells. These blood changes of a leukocytosis, lymphocytosis, with a neutropenia are definitely characteristic of pertussis. In bronchitis the leukocytosis is not so marked and the polymorphonuclear cells have a tendency to *increase* rather than decrease in number. Also, there is but a slight increase in the lymphocytic count instead of the pronounced increase of the lymphocytes found in whooping cough. Figure 1 tabulates six reports on blood counts made on patients suffering from pertussis.

*Read before the New York City Osteopathic Association meeting, October, 1932.

	Case 1 (6 months old)	Case 2 (9 months old)	Case 3 (2½ years old)
W. B. C.	36,000	17,840	15,360
Polys.	21%	17%	12%
Lymphs.	73%	68%	86%

	Case 4 (8 years old)	Case 5 (8 years old)	Case 6 (5 years old)
W. B. C.	17,400	14,040	20,000
Polys.	35%	42%	25%
Lymphs.	60%	56%	74%

Case 7 (Blood count 3 months later)

W. B. C.	5,600
Polys.	63%
Lymphs.	35%

Case 6 was admitted to the hospital for some orthopedic surgery at which time his blood count given in the preceding table was taken. About three months later, while convalescing from his operation and while still a patient in the hospital, someone infected him with pertussis. Note the change that had occurred in his blood picture—a typical whooping cough change. In all six cases reported a leukocytosis is shown along with lymphocytosis and a neutropenia. The reader might wonder why cases 4 and 5 were included since they do not show the low "poly" count that the rest show. Nevertheless, they are pertussis blood pictures, for if these children had had bronchitis with a white count of 17,000 and 14,000 respectively, then the "polys" would have been 60 or 70 per cent, or more.

Pneumonia—

Pneumonia at its onset in children differs somewhat from the onset of pneumonia in the adult. The "rusty" sputum and the pain in the chest are very liable to be absent in the child. Instead, the child is more apt to complain of pain in the right abdomen. This pain, of course, is due to the diaphragmatic pleurisy associated with the pneumonic process of the lower right lobe. Therefore, in a child complaining of fever and pain in the right abdomen pneumonia and appendicitis must both be thought of, and the one differentiated from the other. Points favoring a diagnosis of pneumonia would be a lagging of one side of the thorax during the respiratory excursion, a respiratory rate of 60 or 70 or more a minute, and a leukocytosis of 20,000 or more. The points favoring a diagnosis of appendicitis would be no inequality of the thoracic respiratory excursion, a respiratory rate but slightly increased—perhaps 35 or 40 per minute, and a leukocytosis of less than 20,000, and spasm of the right rectus.

Otitis Media—

Otitis media is not an unusual childhood complaint. Aside from the quite typical history of the child having a "head cold" for a few days and then having suddenly awakened one night screaming and tugging or rubbing one ear, or in the older child a ready complaint of earache, otitis media may be present with none of the history just mentioned. In other words, it is possible to have otitis media without pain. Therefore, in all cases of increased temperature, particularly if it happens to come as a complicating factor to one of the other acute diseases, a thorough otological examination should be made. While on the subject of otitis, I would like to call attention to one thing more. If at any time a child is being treated for otitis media, the drum head has been lanced and yet ten days later that child is still running a temperature and his ear is still draining, we must look for mastoiditis. We should not wait until soreness develops around the tip of the mastoid, but watch carefully the posterior canal wall for bulging and look for mastoiditis!

Except for scarlet fever there is no condition which is so commonly followed by acute suppurative nephritis as is the common "cold" or sinusitis in children. Therefore, no child under an osteopathic physician's care for a "cold" should ever be discharged until the spinal segments from the tenth dorsal to the second lumbar have been carefully and thoroughly freed from restricted or limited motion.

Pyelitis—

Many times a child is brought to the physician's office with the complaint of periodic fever for which no explanation can be given. The parents have given him a cathartic, and yet he still has the increase in temperature, but to all appearances is perfectly well. He has no complaint, has no pain anywhere, but does have a fever of 102° or 103°. Most frequently, and particularly if the child is a girl, pyelitis is the logical thought. In confirming or ruling out a diagnosis of pyelitis, dependence should not be made upon one negative urinalysis. Instead several analyses should be done and if albumin is present but no casts are found, then a sterile catheterized specimen should be obtained and cultured to identify the offending organism.

General Remarks—

The above facts very briefly touch on some of the more common juvenile conditions met with in children. There are many more, of course, and also there are many chronic complaints of childhood of which nothing has been said. Even of these diseases mentioned much more could be written but time and space does not permit it. We shall very briefly say a few words in regard to some of the acute conditions herein mentioned.

Fever being the outstanding symptom of the acute diseases, the question commonly arises, "when should we interfere with it?" This is a question that all physicians have to meet whether they are practicing pediatrics or not. Obviously the treatment of fever is the treatment of the cause. However, there are many instances where we are doing all in our power for the removal of the cause of the increase in temperature, and yet the fever remains high, materially adding to the discomfort of the patient and the gravity of the disease. In such instances we should attempt to relieve or lower the fever. In general, interference is indicated when it disturbs the patient—such as producing diminished assimilation, loss of sleep, irritability, and restlessness, and persists for more than a day or two. In such conditions an attempt should be made to reduce the temperature whether it is 102° or 105°. Many times osteopathic manipulative treatment alone will reduce fever. However, if it does not, we take recourse to hydrotherapy in the form of tepid spongings, cool wet packs, or colonic irrigations.

Our osteopathic manipulative treatment in the acute diseases is practically the same in all instances. If the temperature is below 102°, the child is given a thorough relaxing treatment along the entire spine from the occiput to the sacrum, after which corrective treatment is applied to assure free mobility at all of the spinal segments. Following this the child's chest is "pumped" for approximately ten minutes, the entire treatment taking about 15 minutes. In the event that the child's temperature is above 102° the same procedure is followed, save that bony corrections are omitted.

In certain conditions the treatment just outlined is given but in addition certain specific forms of manipulation are added, such as the relaxation of all the tissues surrounding the inflamed and infected parotid gland in mumps, and the relaxation of all the anterior cervical tissues in pertussis. Quite frequently in whooping cough one finds the hyoid bone tilted and held in this position by the contracted anterior cervical tissues. In nephritis and pyelitis the dorsolumbar region should be hyperextended frequently during the day.

Summary—

Some of the more common acute disturbances of childhood have been mentioned with a few of the differential signs and symptoms of the individual diseases. An attempt has been made to describe briefly the osteopathic treatment of the acutely sick child, but no attempt has been made to mention the diet or catharsis in the acute conditions of the child since this differs in no respect from that of the adult, save in quantity. It is hoped that if this paper has not proved extensively enlightening, that it at least has recalled some fact to mind which may have been forgotten temporarily.

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NONSPINAL OSTEOPATHIC LESIONS

In this issue of THE JOURNAL there begins a short series of essays on the vertebral lesion by Albert E. Guy. His first essay deals with the exonuclear lesion, the extrusion of the nucleus pulposus of the disk. While this is a spinal condition, it is distinct from the orthodox intervertebral lesion which so many osteopathic physicians consider to be the only osteopathic lesion.

This occasions the comment that there are many articular disturbances not in the spine, whose manifestations are in some measure the same as those which the osteopathic physician has found to be characteristic of the spinal lesion, and if the expression, "osteopathic bony lesion" is justified at any time it is applicable to them without qualification. They may initiate afferent impulses which, when the summation of stimuli is sufficient, will boil over into the efferent system. The efferent effects may be motor, secretory, or some other variety.

Many will offer objection to that theory. But the logic is inescapable. On the other hand, we have heard objection to the theory that the osteopathic lesion can produce remote effects. Some of the good physiologists in the profession hold to the theory that all results of spinal lesions are produced by the excess of afferent impulses originating in those tissues in immediate connection with the intervertebral lesion, which are suffering from the edema and stasis produced by it. If these physiologists are correct, will anyone deny that in the appendages for example, joint injuries, or injuries in fact of any tissue, do produce and originate afferent stimuli which tend to pile up in the central nervous system until they spill over in the excess of efferent stimuli?

If we are to be consistent we cannot ignore the fact that injury to any joint can and does produce the same local pathology as that produced around injuries of spinal articulations. Because the spinal joints are strategically located with respect to the cord and its important emerging nerve trunks, lesions of these joints are in a position to do damage of a type comparatively easy of recognition.

One need only to look at the symptom-producing reflexes generated by rectal pathology to obtain some idea of the bombardment of impulses, originating in a distal tissue, upon the central nervous system, and the far-reaching effects of that excess stimulus.

Then it is logical to conclude that lesions (pathologies) of the joints of the appendages do produce a set of reflex stimuli which sooner or later do result in a sequence of events not unlike those found in the spinal articular lesion.

Altogether too little is known about the origination of stimuli in the afferent nerve system but if we admit that a painful stimulus to the sensory organ may produce an immediately-originated stimulus to certain muscles, we must logically infer that every distal pathology does the same thing.

This reminds us that the osteopathic profession is accused by its detractors of attempting to take all disease and fit it into one supposedly peculiar theory of causation. Simply because osteopathy as a general rule holds to a very logical theory, we are accused of narrowness. In other words, allopaths, who constantly prate about "scientific medicine", cannot conceive of such an elementary thing in science as consistency in etiology. In no other branch of science is logic and reasonableness considered to be a weakness.

There is no reason to doubt that there is considerable of a gap between pathology produced by strictly spinal articular lesions and the totality of body pathologies. Logically, that gap must inevitably be filled to a very large measure by the impulse-initiating pathology in other body tissues, and nonspinal joint lesions play a larger part than is generally recognized, even by osteopathic physicians.

R. C. Mc. and R. G. H.

WHY PICK ON MEDICAL CARE?

The final report of the Committee on the Costs of Medical Care* completes the publications reporting the work of this highly publicized committee, an extra governmental activity cloaked with pseudo governmental authority through its omnipresent but efficient chairman, Ray Lyman Wilbur. This report sums up the work of the committee and is replete with statistics and conclusions. We should be inclined to commend it to perusal of a harried profession as a well presented subject if we had not known of the biased, misleading, inaccurate studies hitherto published under the auspices and at the instigation of this committee.

The authors say that the American people do not spend too much for medical care, but the spend-

*Medical Care for the American People. The Final Report of the Committee on the Costs of Medical Care. Cloth. Pp. 213. Price, $1.50. The University of Chicago Press, 58th St. and Ellis Ave., Chicago, 1932.

ing is improperly distributed. Quite a truism. It might be said about the expenditure for any commodity or service. They prove their point. They adduce statistics most of which from various previously reported studies we know must be inaccurate and incomplete.

The full text of the recommendation of this committee appeared in the editorial columns of this JOURNAL for January, 1933.

We are struck by the last chapter of the book, signed by Edgar Sydenstricker, Ph.D. It consists of one sentence: "As a member of the committee, I regret that I cannot see my way clear to sign the final report of the committee, for the reason that the recommendations do not, in my opinion, deal adequately with the fundamental economic question which the committee was formed primarily to study and consider."

The ever recurring statement that many persons are obtaining inadequate medical care grows a little wearisome. Just why the cost of medical care should be singled out for the greatest advance in "socialization" of government is a little hard to understand. Certainly the more important problems of insufficiency of distribution of clothing, housing and food have had no such strides toward formal socialism. We suspect that the medical profession, so long proud of its record for charity, has been selected because of its blind weakness; because of its unwillingness in the past to force adequate remuneration by refusal of service without pay. Certainly no other profession with the possible exception of the ministry is so unprotected.

State medicine came first, and it led to socialistic medicine. The Committee on the Cost of Medical Care offers no adequate solution. The solution was already in process of experimentation when the committee started its almost useless task. The experiment will continue over the long period necessary to prove that the services it will provide are inferior. No one knows what the profession which emerges from the experiments in regimentation of practice will be like, but probably the next generation will know to its sorrow.

If the problem could have been settled along with all the other problems of economics and unequal distribution of capital and labor there might have been some hope. But no, the experimenting sociologists (someone has called them disorientated economists) must start with the healing art and science, a field already better understood by its exponents than banking, the law, and perhaps even pedagogy; a profession which has refused to be strangled even by the standardization demands in present day state laws.

If we are to retain our best social order let the economists straighten out the fantasy which has called itself banking and finance. If the people had not been betrayed by malpractice in that field their savings would have been ample to pay most of the necessary costs of medical care. Such malpractice, if exhibited in the healing art, would long ago have deprived the whole body of practitioners of license to treat human ailments.

R. C. Mc.

THE INTERVERTEBRAL DISK

Albert E. Guy in this number of THE JOURNAL takes up a matter which has in recent years received increasing attention in allopathic literature—the occurrence of spinal disorders caused by the presence of extruded nuclear substance within the vertebral canal.

Beadle[1], whose monographic review of literature relating to the intervertebral disk has been mentioned once or twice[2] in this JOURNAL, discusses at some length the work of Schmorl whose findings have formed the basis of so much of the recent writings. Beadle says that Schmorl points out that:

> The vertebral body is ossified from two centers which first of all fuse round the sides leaving a tube of unossified tissue through the center representing the chorda canal. If a disturbance occurs at this stage it is easily conceivable that such a tube-like connection between the intervertebral disks might arise. In the later stages of ossification this tube is gradually filled up, starting from the center, and approaching the two surfaces. Normally no trace of such a tube is present; but if the ossification process came to an end at the penultimate stage a slight hemispherical depression would be produced, appearing in sagittal section as a baying of the intervertebral disk at its center, and covered with still unossified hyaline cartilage.

Beadle publishes a picture of a section from the spine of a four month old calf as being suggestive of how this might happen. He goes on to say:

> Now whatever explanation may ultimately be found for it, this appearance is one of the commonest pathological findings in the adolescent spine. In a large proportion of young spines are seen peculiar expansions in the nuclear region of the disks. . . .
>
> At these expansions of the disk the cartilage plates are definitely thinner, and such points must be regarded as points of lesser resistance. It is here that the slight trauma of functional activity is most likely to cause breaks in the cartilage, a suggestion which is borne out by observation, as is shown in due course. . . .
>
> This explanation of these disk expansions Schmorl (1930) has only recently reached; since he has found them at very early ages, it is impossible to conceive that they are then the result of anything other than developmental defects. . . . The reasonable view would be that they are not in themselves malformations, but rather the results of slight trauma acting upon spines in which some unexplained congenital weakness is present. . . .
>
> But it must be kept in mind that what is actually seen is not necessarily the fault of development itself, but rather the effect of functional strain upon tissue whose texture is improperly formed. . . .
>
> Here and there may be definite interruptions in the cartilage, through which the substance of the nucleus seems ready to slip. In places there are marked thin points in the cartilage, and such sudden reductions in thickness may be associated with the fissure formation, half or more of the cartilage

[1]Beadle, Ormond A.: The Intervertebral Disks. Certain Observations Under Normal and Morbid Anatomy in Relation to Certain Spinal Deformities. Paper. Pp. 80. Price, 2 shillings net. Published by His Majesty's Stationery office, London, under the auspices of the Privy Council, Medical Research Council. Special report series No. 161.

[2]JOUR. AM. OSTEO. ASSN., September, 1932, p. 33, and December, 1932, p. 163.

being torn across and giving access to nucleus tissue, an appearance suggesting that a sudden blow had been aimed at this point from above.

It seems, therefore, that some single series of changes lies at the root of all these phenomena. That this is connected with faulty development is highly likely, but how this element gives rise to the different phenomena, and how far traumatic influences are also at work, cannot be stated. . . .

When a large series of spines is systematically examined, one gains the impression that in the middle decades of life, as much as in the later, well-preserved disks are the exception rather than the rule.

Later in his monograph, Beadle says:

As soon as the cartilage plate gives way, a series of most remarkable changes takes place and leads to great degrees of deformity of the disks. Prolapse of the nucleus tissue through the cartilage into the spongiosa spaces is a phenomenon first discovered by Schmorl. . . .

The prolapses differ greatly in detail according to the conditions and age of the case. They occur typically when a weakness has occurred in the cartilage plate. . . .

The cartilage having once given way, the nucleus tissue in fine projections seeks a passage throngh the bone, urged on by transmitted pressure on the active spine and by the turgor in its own substance. Access to the spongiosa is gained through the fine perforations in the bony surface of the vertebral body.

These fragmentary quotations give only a hint of the extent of interesting material in this monograph.

A more recent paper on the nucleus is that by Keyes and Compere[3] recently abstracted in this JOURNAL.[4] These writers agree with Schmorl that

the commonest lesion of the spine . . . is the prolapse of nucleus pulposus into the spongiosa of the vertebral body. The mere presence of these cartilaginous nodules may not cause pain in the back. The nuclear material is extruded through a crack or other defect in the cartilage plate into the spongy bone by the force which is transmitted to that disk by the weight of the body and by the tone of the spinal muscles and ligaments. . . .

If only a small portion of the nucleus pulposus is extruded, the function of the intervertebral disk may not be seriously affected, and no immediate disability would be expected. The extrusion, however, of even minute portions of the semigelatinous nucleus pulposus may open avenues for dehydration of the disk and hence diminished function at an earlier age than such changes normally occur.

Dr. Guy makes interesting osteopathic applications in connection with this seemingly long-neglected field. The later essays in the brief series of which this is the first, take up other neglected or controversial points in relation to vertebral lesions.

THE NERVE IMPULSE

There are several characteristics of the nerve impulse which have a direct bearing on the study of osteopathic pathology.

The impulse is a metabolic change passing along a fiber like a spark along a fuse. It is transmitted by the metabolism of the fiber as it travels along and does not depend on an original impetus at the point of stimulation. The actual process involved in the passage of an impulse is a disturbance in the ionic arrangement of the protoplasm which constitutes the fiber substance. A stimulus disturbs this ionic arrangement and the disturbance is rapidly transmitted to adjacent molecules until the whole fiber has been traversed in a comparatively short time. It can be seen that the passage of an impulse, as well as the return to the resting ionic equilibrium, is influenced by local variations in the metabolic state of a nerve fiber throughout its length.

A nerve fiber gives an all or none response to a stimulus and transmits an impulse at the maximum capacity of its metabolism. A given stimulus either excites a nerve fiber or it doesn't. The impulse is either transmitted or it is not. Beyond this one distinction of whether or not there is a stimulus adequate to excite the fiber, the strength of stimulus does not influence in any way the transmission of the impulse. Variations in the speed of transmission of the impulse and in the speed of the return of the nerve to a normal resting state do occur, but they have no relation to the strength of stimulus. They are dependent upon the metabolism of the nerve.

When part of a nerve trunk is subjected to forces which slow up its conductivity (such as pressure or acidosis), the resulting delay in impulse transmission can only be noticed in the part of the nerve involved. As soon as the impulse traverses an area of nerve that has been partly narcotized and reaches an area of normal nerve, it resumes its usual speed in travelling to its destination. To again use the fuse as an illustration, a spark will be slow in passing through a section of fuse that is slightly damp, but will recover its speed and intensity when it reaches a dry part again.

A nerve fiber passing through an area of relative acidosis is affected by the fluids with which it comes in contact. Its metabolism is altered when its supply of oxygen is limited and when the acid radicals are in excess of normal. Any alteration in its conductivity is purely local to the portion of the nerve traversing the area of disturbance, and conductivity remains normal in all sections of the nerve beyond.

It seems probable then, that an acidosis or a pressure, as it affects a nerve fiber, would need to be sufficient to block the passage of an impulse completely before it would materially alter it by the time it reached the distal portion of the nerve.

R. N. MACBAIN.

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[3]Keyes, Donald C., and Edward L. Compere: The Normal and Pathological Physiology of the Nucleus Pulposus of the Intervertebral Disk: An Anatomical, Clinical and Experimental Study. *Jour. Bone and Joint Surg.*, October, 14, 1932.

[4]JOUR. AM. OSTEO. ASSN., December, 1932, p. 163.

The late effect of the osteopathic lesion on organs and tissues remote from the lesion is pathologic change of an inflammatory or degenerative character, accompanied by perverted metabolism and physiologic discord.—*College Journal.*

EXECUTIVE COMMITTEE MEETING

The Executive Committee of the American Osteopathic Association, consisting of V. W. Purdy, President; A. D. Becker, immediate Past President; Perrin T. Wilson, First Vice President; John E. Rogers, Chairman of Department of Professional Affairs; E. A. Ward, Chairman of Department of Public Affairs, and R. C. Mc Caughan, Executive Secretary, met in Chicago December 31 and January 1. The following is a brief account of their more important actions and abstracts of reports of departments, bureaus and committees, some of which will be reported more fully later.

The Ontario Academy of Osteopathy was recognized as the divisional society in that province. Steps were taken for organizing and recognizing student auxiliaries in the osteopathic colleges. The International Board of Ophthalmology and Otolaryngology as at present constituted was officially recognized.

The following named ten members of the Association were nominated from among whom the Research Institute is to elect five of its trustees: H. W. Conklin, G. V. Webster, S. V. Robuck, V. W. Purdy, A. D. Becker, R. D. Emery, Jennie Alice Ryel, Della B. Caldwell, George M. McCole and Arthur E. Allen.

S. V. Robuck was nominated to succeed himself as a member of the Board of Trustees of the American Osteopathic Foundation.

Careful consideration was given to the budget for the balance of the fiscal year, in view of the prevailing financial situation.

John E. Rogers, Chairman of the Department of Professional Affairs, reported for some of the chairmen of bureaus in his department as follows:

S. V. Robuck, Program Chairman, has carefully thought out every move, every suggestion and every invitation before presenting them. He will have a program of outstanding merit.

Arthur E. Allen heads the Bureau of Professional Development, one of the most important in the A.O.A. He is doing a very commendable work.

P. W. Gibson is continuing from last year his work as Chairman of the Bureau of Censorship. A special committee has been working on suggested revisions of the Code of Ethics. R. H. Singleton is chairman of the American Osteopathic Foundation Committee. He and Ira W. Drew are working on plans for establishing and maintaining osteopathic free clinics. As the work of the foundation is better understood and appreciated, sufficient interest can be aroused among philanthropic individuals to secure gifts for the welfare work of osteopathy.

The Department Chairman, as Chairman of the Bureau of Professional Education and Inspector of Colleges, has already visited the Des Moines, the Chicago and the Philadelphia schools. The type of work done in our colleges improves yearly. The most important part of the activities of the Association is found in professional education. It is the foundation of legislative efforts and every other professional activity. It will soon be necessary to furnish our graduates with interneships in teaching hospitals or an equivalent training in order that we may be protected by adequate laws. In inspecting these colleges, attention was paid especially to the teaching of technic, its approach, presentation and emphasis in the teaching of therapeutics and to the conduct of clinics as the working laboratory of the physician.

E. A. Ward, Chairman of the Department of Public Affairs, reported for the Chairmen associated with him thus:

Arthur G. Chappell, Legislative Adviser in State Affairs, is continuing his service for states seeking new legislation or being forced to combat adverse legislation.

Della B. Caldwell, Chairman of the Committee on Osteopathic Exhibit Demonstration Clinics, has carried out the first adult clinic at the Iowa State Fair and is stimulating interest in the profession in favor of similar clinics elsewhere.

Phil R. Russell, Chairman of the Bureau of Public Health and Education, is successfully going forward with the work he began last year.

Ira W. Drew, Chairman of the Bureau of Clinics, is still working on the plan for coördinating the work of his Bureau with that of the American Osteopathic Foundation.

Thomas R. Thorburn, as Chairman of the Bureau of Industrial and Institutional Service, is surveying (1) the status of osteopathic physicians as examiners for life insurance companies; (2) their status in connection with industrial or compensation insurance; (3) the relation of nursing service for insurance policyholders, to osteopathic physicians.

Dr. Thorburn's report also contained the following statements:

Our problems vary greatly, largely because of the inequality of state laws and the fact that many states have two classes of licenses to practice osteopathy. There is proof that we have enough staunch supporters in the insurance world to enable us to make considerable progress. Compensation insurance presents the problem of recognition of osteopathic physicians and the acceptance of their certificates, and of fees for services. One aspect of the problem has to do with the scale of fees allowed by insurance carriers and accepted by allopaths. The scale promulgated by the County Medical Society of New York, for instance, is below the regular fee schedule charged by osteopathic physicians and by the better grade of allopaths.

The extension of nursing service to cases under the care of osteopathic physicians is receiving particular attention. The Metropolitan Life Insurance Company has agreed to provide such service where the legal status of the osteopathic physician is on a par with that of other physicians.

Howard E. Lamb, Secretary of the Committee on National Publicity and Fund Raising Campaign, reported in part as follows:

The Committee with the assistance of the Central office staff, has prepared a program to be presented to interested parties as the profession's aim for guaranteeing to posterity efficient osteopathic therapeutics. When this program has been adopted officially by the American Osteopathic Association, the profession will have automatically launched a real offensive.

Those who contribute money for humanitarian purposes want to know exactly what this money is to be used for and it is with this in mind that the program has been outlined. The Committee has a fairly good idea of the amount of money necessary to endow each of the several chairs which require full time instructors in osteopathic colleges, the cost of maintaining and operating a department of clinical research in each college, and the cost of maintaining and improving the A. T. Still Research Institute.

AMERICAN OSTEOPATHIC FOUNDATION

The annual meeting of the American Osteopathic Foundation was held in the office of Mr. Robert Childs, Chicago, January 21, 1933.

S. V. Robuck was reëlected trustee to represent the A.O.A. on the Foundation Board. Mr. Robert Childs, a prominent attorney in Chicago, was also reëlected trustee to serve for a period of five years.

There are many evidences that the profession is becoming foundation-minded. The secretary frequently receives requests for information about the Foundation organization and for suggestions as to the best form for making bequests.

Many osteopathic physicians have already mentioned the Foundation in their wills and it is becoming clear that the "back log" of the organization's finances eventually will be composed of bequests from our profession and its lay friends.

R. H. SINGLETON.

The immediate effect, then, of the osteopathic lesion on organs and tissues remote from the lesion is active congestion accompanied by accelerated metabolism and increased, and often perverted, motor and secretory activity.—*College Journal.*

REPORT OF AMERICAN OSTEOPATHIC ASSOCIATION TRUSTEESHIP OF THE AMERICAN OSTEOPATHIC FOUNDATION

December 28, 1932

It was at Denver in 1927 that the American Osteopathic Association appointed a committee for the purpose of organizing the American Osteopathic Foundation. This committee consisted of the past presidents and R. H. Singleton. In the spring of 1928, the officials of the American Osteopathic Association chose the writer as its member of the Board of Trustees of the American Osteopathic Foundation. The organization of the Foundation was consummated at Kirksville during the A.O.A. convention of 1928. Following this, the other officers were elected, two of whom were prominent laymen of Chicago—Mr. Robert Childs and Mr. Curtis Coe. At the first official meeting of the officers of the American Osteopathic Foundation the writer was elected president, and has since served in that capacity by reëlection.

The Foundation had to start without funds, and to look for its support to a profession far from being foundation-minded. The profession had to be educated to the possibilities of securing funds for the existing osteopathic activities as well as for others which needed to be created. To this end articles were prepared for THE JOURNAL OF THE AMERICAN OSTEOPATHIC ASSOCIATION, THE FORUM and the OSTEOPATHIC MAGAZINE, directing attention to the need for donations, bequests and endowment funds for our colleges, clinics, hospitals and the A. T. Still Research Institute.

Many articles have been written to create a consciousness of the need for a Student Loan Fund. The success of this educational work is obvious; a good start has been made by the American Osteopathic Association. Considerable material has been published to popularize gifts and bequests to the Foundation to be used in the Student Loan Fund and other promotional activities as the donor wished, or according to the judgment of the Foundation Board.

During the past two years, the Foundation has been endeavoring to find ways and means to attract large funds. It has studied several proposals for fund drives, all of which, in the judgment of the Board of Trustees, have lacked practicability.

At the suggestion of the American Osteopathic Association at Seattle, the Foundation undertook the sponsorship of the Osteopathic World Health Cruise. The possibilities of securing special funds and extensive publicity were the attractions. A large amount of material was scrutinized in the selection of campaign literature for the cruise. There has been no direct cost to the Foundation for this, Mr. Boris Lutz having financed the campaign, with the exception of the labor of those in the Central office and the officers of the Foundation, and the great amount of space in THE JOURNAL, THE FORUM, OSTEOPATHIC MAGAZINE, and OSTEOPATHIC HEALTH, which was contributed by the American Osteopathic Association. It was deemed advisable in the early summer of 1932 to postpone further efforts in behalf of the Osteopathic World Health Cruise until economic conditions would justify a renewal of the campaign.

The personnel at the Central office deserves great commendation for its assistance in editing and preparing material for articles and advertisements in all its publications, and numerous other services in promoting the welfare of the Foundation.

To date, $4,900.00 in round figures has been contributed directly to the Foundation fund in bonds and cash. The Foundation has been named as beneficiary in at least a few wills.

Altogether, during the short lifetime of the Foundation, most of it within the past two years, $41,400.00 has been attracted to osteopathic philanthropy, not counting the benefits to acrue from wills already written. Contributions have been made as follows:

Dr. Edgar Culley to Student Loan Fund	$34,000 (par value)
Sale of Student Loan Fund Seals (two years)	2,500
Bonds and cash on hand	4,900
Total	$41,400

(These quotations are in round figures and are less than amounts received.)

The expense of the Foundation has been carried largely by the American Osteopathic Association. The secretary and president of the Foundation have contributed no small amount in postage and miscellaneous items. The funds received into the Foundation, together with earnings, have been kept intact. A good part of these funds was given for a specific purpose.

Though the Foundation has been doing a pioneer work in a pioneering profession, much of it during three years of financial disaster, there are results to encourage the continuance of a persistent educational program among our members, and a more insistent drive for funds from our friends in and out of the profession.

Prospects for the future are excellent. Once we secure a sizeable fund, the Foundation's popularity will know no bounds. There are numerous ways in which funds may be utilized in osteopathic work to a greater advantage than in any other field. Osteopathy is a virgin field for philanthropic work and the Foundation offers to the osteopathic profession its greatest medium for obtaining necessary funds to establish its tenets and practice.

In the beginning such an organization as the American Osteopathic Foundation must develop slowly; but when the full purport is grasped by our profession and its lay friends, imaginations will be fired by enthusiasm and desire to achieve results comparable to this fine and substantial beginning; greater and greater possibilities are bound to unfold and materialize in marvelous achievement.

S. V. ROBUCK,
A.O.A. Trustee of the American Osteopathic Foundation.

Department of Professional Affairs

JOHN E. ROGERS, Chairman
Oshkosh, Wis.

PUBLIC RELATIONS COMMITTEE

C. D. SWOPE, Chairman
Washington, D. C.

Copies of the proposed uniform narcotic act, discussed on page 147 of the December JOURNAL, have been sent to all state legislative chairmen, by the chairman of the Public Relations Committee.

Department of Public Affairs

E. A. WARD, Chairman
Saginaw, Mich.

LEGAL AND LEGISLATIVE

A. G. CHAPPELL
Legislative Adviser in State Affairs, Jacksonville, Fla.

IDAHO BILL FAILS

For the sixth successive time the profession in Idaho failed to secure a new osteopathic law. One reason given was the presence in the legislature of six allopaths who were not only on the job, but boastful of the fact. A year ago the attorney general ruled that minor surgery is permissible, as well as obstetrics with the use of antiseptics, anesthetics and narcotics. Yet very recently a Boise osteopathic physician was charged with vaccinating a patient without a license so to do.

ILLINOIS BILLS

The Illinois profession is undertaking the passage of a bill to give a separate board of osteopathic examiners and one to liberalize the privileges of practice.

INDIANA REORGANIZATION LAW

The Indiana legislature has given the governor dictatorial powers for the reorganization of the state government under which he may reorganize or even abolish such bodies as the state board of medical examiners.

IOWA BILL

When the Iowa laws were recodified in 1924 the osteopathic law was rewritten to such an extent as to be greatly weakened. A bill has been introduced in the present legislature to remedy the objectionable features. It would still provide for two forms of license—osteo-

pathic physician and osteopathic physician and surgeon. Among the studies it would require of the osteopathic physician and surgeon, is a course in an approved osteopathic or medical college of at least eight semester hours in materia medica, pharmacology and pharmaco-dynamics. It is provided also that the rights of an osteopathic physician and surgeon "shall in no wise differ from those held by a licensed practitioner of medicine and surgery" and that those of the osteopathic physician are the same except that he shall not be permitted to administer or prescribe internal drugs except necessary narcotics and anesthetics in obstetrical and minor surgical work, or to practice major surgery which, under this law, "shall mean opening the major cavities of the human body, surgical work upon the brain, or amputation of a limb or any part thereof, except fingers or toes."

MISSOURI BOARD THREATENED

Governor Park has some of the same ideas of economizing by consolidation of government boards as those expressed by Governor Caulfield before his retirement and mentioned in this JOURNAL last month. The state board of osteopathic examiners in Missouri always has been self-supporting, which would seem to do away with the argument from the standpoint of economy. Charles E. Still is a member of the legislature and of course will oppose such action.

NEW JERSEY STILL FIGHTING

The profession in New Jersey is making its annual fight for more liberal legislation.

NEW YORK HOPES TO WIN

Practically the same bill that came so near passage in New York last year is being pressed again at this session of the legislature.

INDEPENDENT BOARD BILL IN OREGON

A bill has been introduced in Oregon to create a board of three osteopathic examiners and to raise the license fees for osteopathic physicians from $10 to $25.

PRESCRIPTIONS IN OREGON

The office of the attorney general in Oregon ruled on January 19 that an osteopathic physician in that state may write prescriptions for drugs. The ruling lists the subjects in which an applicant for a license must be examined and shows that his license qualifies him "to practice osteopathy and the science of healing as taught in the branches and embraced in the subjects covered by said examination" and authorizes him "to issue any certificate which is authorized or required from any physician or surgeon under the laws of this state" and "to use anesthetics and antiseptics."

He says further: "Together with specific mention of authority to use anesthetics and antiseptics . . . osteopathic physicians are licensed to practice such branches of medicine as are commonly known to involve the use of drugs of wide range and variety, thus implying that drugs may be used by osteopathic physicians in any manner required of the branches of medicine which they are authorized to practice."

He showed also that the original osteopathic act in Oregon prohibited prescribing or using drugs or the practice of major surgery by osteopathic physicians but that that part of the law had been repealed. He adds, "the fact that said provision of the osteopathic law was repealed would seem to be a clear indication of the legislative intent to remove all restrictions heretofore existing as to the prescribing and use of drugs."

BASIC SCIENCE BILL IN SOUTH DAKOTA

The allopathic profession in South Dakota had a basic science bill introduced after making elaborate preparations.

SWEEPING MEDICAL BILL IN WASHINGTON

The allopaths have introduced a medical bill in the State of Washington which, if passed, may seem to promise a great deal of trouble for osteopathic physicians and surgeons because its section 17, definitions, provides "the expression 'legally qualified physician and surgeon', 'duly qualified physician and surgeon', or 'regularly qualified physician and surgeon' when used in any act or law, shall be construed to mean a person registered under this act," and section 24, "all acts and parts of acts in conflict herewith are hereby repealed."

BRITISH COLUMBIA

Osteopathic practice in British Columbia has been "as taught in colleges of osteopathy" and the profession has always declined to put forward any limiting definition of the science.

Of late there has been a considerable battle over the right of osteopathic physicians to practice in public hospitals and it is understood that the allopaths contemplate the introduction of an amendment to the vital statistics act and also the hospital act to limit the right of osteopathic physicians in both these fields.

ONTARIO

The profession in Ontario contemplates the introduction of a private bill—that is, one not directly sponsored by the government—to liberalize the regulations governing practice in that province.

COMPENSATION FOR SUNSTROKE DEATH

An award under the District of Columbia Compensation Act for the death of a delivery boy by sunstroke while delivering goods to customers was affirmed by the Court of Appeals during a recent case. The court held that "heat prostration arising out of and during the course of employment of an employee is an accidental injury within the sense of the statute, if the nature of the employment exposes the employee to the risk of such injury."

LOANS TO HOSPITALS

A bill (S. 5251) has been introduced in the U. S. Senate to empower the Reconstruction Finance Corporation to lend money to hospitals the same as to other institutions.

COMMITTEE ON OSTEOPATHIC EXHIBIT DEMONSTRATION CLINIC

DELLA B. CALDWELL, Chairman
Des Moines, Ia.

The chairman met with the trustees of the Missouri Association at Columbia recently to stimulate interest in an adult health clinic at the Missouri State fair such as was conducted last fall at the Iowa fair.

Many of those in attendance asked for copies of all the letters and articles used in connection with the Iowa meeting. Drs. Hildreth, Laughlin and Conley supported the project whole-heartedly.

It develops, however, that the state economy program makes it seem certain that Missouri will not hold a state fair this year or next.

The chairman feels, however, that the interest aroused will carry over to the return of normal times.

State Boards

California

Warren B. Davis, Long Beach, has been elected president of the California examining board. Edward B. Jones, Los Angeles, is vice president, and Lester R. Daniels, Sacramento, secretary. The other members are Ernest G. Bashor, Los Angeles, and Robert Lawson, San Francisco.

Indiana

J. B. Kinsinger, Rushville, many years a member of the Indiana State Board of Medical Registration and Examination has just been reëlected to the office of vice president of the board. Dr. Kinsinger is the only osteopathic physician on the board.

Massachusetts

Mark Shrum, Lynn, has been appointed osteopathic member of the state medical board. Frank M. Vaughan was osteopathic member for many years and at least a part of that time secretary. At the expiration of his term in 1931, the governor appointed an allopath in his place, declaring that the law made this necessary and that the presence of an osteopathic member on the board all these years had been illegal. While this was not admitted by the osteopathic profession, they secured an amendment to the law so that there could be no question about the legality and Dr. Shrum was appointed.

Some Highlights on the Convention Program

Hotel Schroeder, Milwaukee

Following the submission of a tentative outline of the general program and the policy to be pursued in constructing the general and sectional programs, your president, Victor W. Purdy, had the following to say regarding our 1933 National Convention program: "To produce a program that will gladden the heart of the 'old-timer', captivate the recent graduate, quench the thirst of the 'rusty' looking for new pointers, stimulate the sluggish, gratify the ambitious, amuse the weary and reward the faithful—is indeed a Herculean task. It is my opinion that the 1933 National Convention will demonstrate your ability to fulfill the above requirements."

It is the ambition of your program chairman to accomplish as nearly this result as is humanly possible. A detailed convention program will be published in a later issue but in general we have to offer you a list of speakers who, by training and experience, are exceptionally well qualified to speak authoritatively and, I may say that those we have selected on both the general and the reserve speakers' program are particularly capable of presenting their material with distinction and unusual interest. The experience of some of these men and women is based upon institutional as well as private practice. Some have gleaned data of inestimable value by close observation and records of clinical experiences in family practice.

The scope of territory covered in the general program is very inclusive. Definite knowledge in pediatrics is of vital importance. Advanced data on the care of prospective mother and infant is of marked value regardless of whether one specializes in these fields. The results obtained here are so outstanding that a capitulation of this information would be a marvelous stimulus to the entire profession and its lay friends.

The clinical research angle to the practice of the general practitioner is becoming exceedingly important and as the years roll by the osteopathic profession must of necessity grow more enthusiastic in its study of deeds accomplished. To sit in session and drink in the wisdom that must come from close observation of various investigators in different fields cannot help firing the enthusiasm as well as enlarging the knowledge and increasing the efficiency of any osteopathic physician. Whether you are concerned in your practice with mental diseases, athletic injuries, metabolic disturbances, heart diseases or other phases of osteopathic practice, you will find in this program food for thought and instruction for practical application.

The psychological side of practice is of great importance and this is not to be overlooked even from a purely psychological point of view of the patient himself or from the point of view of managing that very important phase of business transactions incident to developing and maintaining a successful practice. From the psychological phase, we must turn to that concerned largely with the physical and physiological. Here some of our masters will give us concentrated instruction in the various phases of aggressive therapeusis. The chemical or dietary element cannot be overlooked and the physical therapeutic measures so characteristically osteopathic must receive adequate elucidation. It is not enough to busy ourselves only with the mechanics of therapeutics, but we must also take into consideration the development of our concept of the patient as a whole. Realizing the extensiveness of pathological changes which bring about minor and major phases of perverted physiology that do not present obvious manifestations, is one of the first essentials to becoming a great physician. A program designed to correlate these various fields of activity that are so closely interrelated must have definite value to the listener. To sit at

LOOK — LISTEN — LEARN
AT
Milwaukee, July 23-28, 1933

CLINICS revealing new possibilities in osteopathy.
LECTURES condensing years of valuable experience.
DISCUSSIONS which shed new light on many problems.
PAPERS which enlarge our professional knowledge.
EXHIBITS of equipment that promotes our efficiency.
FELLOWSHIP that broadens and enriches our lives.
RE-UNIONS that are really a vacation in themselves.
RELAXATION at the Century of Progress Exposition.

YOUR ATTENDANCE WILL ADD TO ITS SUCCESS
THE EXPERIENCE WILL PROMOTE YOUR

the feet of instructors, each of whom can give something practical to take back home, has a value not only in the force of the concrete and practical information gleaned, but also in the great enthusiasm that one must feel from having mingled with so many who are vitally interested in a common subject and who are striving so earnestly to practice the tenets of their school so efficiently that even the biased finger of criticism cannot point out inefficiencies.

It is your Program Chairman's ambition to give you such a program and more. With the kind coöperation which he is receiving, a most gratifying program is assured. Words cannot convey to you the real values to be found in the program as it is now constituted. The coöperation has been so great that the general program is completed and our list of reserve speakers is so good that a new program set-up could easily be developed that would be entirely satisfactory to the most critical.

Much the same that has been said of the general program can be said of the sectional programs, but we will leave that story for another time.

S. V. Robuck,
Chairman, Convention Program.

Case Histories

ACUTE CHOLECYTITIS AND COLITIS

Report of Case

Case.—A single woman, aged 30, was admitted to the Chicago Osteopathic Hospital (11-12-31) complaining of a severe pain in the right hypochondrium radiating along the seventh and eighth ribs.

History.—The patient was admitted to the hospital a year before (November 20, 1930) and diagnosis of colitis was made. She was readmitted to the hospital a few days later for observation. On September 21, 1931, was admitted again suffering with an attack of pain. In all three former admissions the patient was relieved by manipulative treatment and discharged in an improved condition.

Her family history was as follows: Mother died at the age of 43 from apoplexy; father dead—suicide; one sister has chronic arthritis, and latent tuberculosis; another sister was operated on for cholelithiasis at the age of 25. Her maternal grandmother suffered from frequent attacks of cholecystitis, and her mother was subject to a gastro-intestinal complaint with sudden attacks of terrific pain. Seven years ago the patient reduced her weight from 213 pounds to 138 pounds by merely taking citrus fruits before breakfast and reducing the amount of starch in her diet.

During the previous eighteen months she had eight attacks similar to the one from which she was now suffering. Six hours before the last admission, she was seized with a pressing band-like pain across the epigastrium and later vomited immediately after ingestion, a glass of milk. The vomitus was bile-stained.

Her present complaint was characterized by a pain beginning in the back and running "straight through" to the epigastrium. At times it had been relieved by vomiting but only temporarily. Since the first attack 18 months ago, the patient, who previously had exercised no selection of foods, has been afraid to eat starchy and greasy foods, as she believes that they initiate these attacks. She is subject to attacks of belching and "heaviness" in the epigastrium if these foods are eaten. About one week ago she complained of intense general itching. No change in the stool has been observed.

Examination.—An exhaustive physical and laboratory examination was made. The nervous system, gastro-intestinal, cardiovascular, respiratory, and genito-urinary systems were normal. General sensation was normal over the body except over the abdomen where there was indefinite hyperesthesia to the pin prick, chiefly concentrated in a band across the epigastrium and following the interspaces of the 9th, 10th and 11th ribs. In the back, the same band of hyperesthesia was quite sharply marked off, crossing the spine at the 9th and 10th dorsal vertebræ. There was a definite deep hyperesthesia to pressure along this same band anteriorly and posteriorly. The skin over this area felt edematous, almost crepitant. There were bony lesions as follows: the left innominate, 4th and 5th lumbar and 8th dorsal vertebræ. Radiologic examination revealed a marked colitis and condition suggestive of cholecystitis. All other findings were negative.

Treatment.—Deep pressure was applied over the 7th and 8th dorsal vertebræ which gave her almost immediate relief. She was discharged the following day in an improved condition. A week later she was readmitted to the clinic with the same complaint as before. She was hospitalized, ice packs were applied to the right epigastrium, and deep, steady pressure as before over the lesioned structures again brought relief and the patient was discharged the following day. On account of muscular tension, no specific adjustment could be made.

Progress.—Subsequent examinations over a period of a few weeks showed that she was markedly improved with a slight improvement of the spinal lesions.

Summary.—Every attack of pain was relieved by the manipulation as described. Undoubtedly the colitis and cholecystitis were related and the spinal lesions were associated in the vicious circle. It would be hard to say whether the spinal lesions were primary or secondary, but their ultimate correction could likely be a large factor in clearing up the condition.

J. Stedman Denslow
Chicago

ACUTE ANTERIOR POLIOMYELITIS

Report of Case

Case.—Girl, aged 5. I was called to see this patient five days after she was seized with a severe headache, and a temperature of 101 degrees.

History.—When the child first became ill she was taken to another physician who made a diagnosis of influenza and prescribed a cathartic.

Examination.—There was a flaccid paralysis of all extremities, and incontinence of the bladder and rectum. There was a marked second cervical lesion. From these symptoms, and the existence of an epidemic at that time, I made a diagnosis of infantile paralysis.

Treatment.—Liquid diet was given until the temperature became normal. Cold compresses were applied until the fever subsided. The patient strenuously objected to hot compresses. Gentle muscular relaxation of the spinal region was immediately instituted and given daily with the patient on her back. Later (a week) specific adjustment was attempted. The mother was instructed to gently massage the extremities of the child twice daily. An enema of warm soapy water was given daily.

Progress.—Improvement was evidenced first in the arms, during the third week; during the sixth week, the legs showed slight improvement. Continence of the rectum and bladder returned about the eighth week. In four months she could walk unaided into my office. On account of the great distance she has to come for treatment, she is being treated once a week at present. She uses her feet and legs noticeably better every week. The muscles have apparently regained their normal tone.

Summary.—This is the most severe case of infantile paralysis that I have ever had, that was followed by such a complete recovery. She can walk and play all day. During the acute stage the patient was instructed to lie most of the time on the stomach, except during treatment. Although this was not made a rigid rule by any means.

William B. Lamb
Hamilton, Ohio

ACUTE ANTERIOR POLIOMYELITIS

Report of Case

Case.—Boy, aged 3½, was seized with an attack of intestinal indigestion, September 7, 19—. I was called at this time.

History.—The patient, formerly in rugged health, was suffering with headache, epigastric pain, and fever (103.2°) of an intermittent type. I made a tentative diagnosis of intestinal infection, but as there was an epidemic of infantile paralysis, I reserved making a definite diagnosis at that time. Three days after this acute attack he could not stand, on account of great weakness of the leg and back muscles. The paralysis became progressively worse until the sixth day a diagnosis of acute anterior poliomyelitis was made.

Examination.—The patient was unable to stand. There

were no detectable subluxations; the main spinal lesion consisted of a rigidity from the fourth to the eleventh dorsal vertebræ. All other examinations were negative. The back and lower extremities were the only parts affected.

Treatment.—During the first three days, a scanty liquid diet was prescribed, during the fever stage, a milk diet was used, and the remainder of time, no special diet was used. From September 10 to 18 he was given gentle manipulative treatment daily, for a period of about ten minutes. After that the treatment was more vigorous, and less frequent. Patient was not required to lie in any special position.

Progress.—On September 18 the patient could walk a little. In four weeks he could raise his right leg. The case was dismissed on November 23, as cured. I did not see the patient again until he was a young man. Then I learned that his only physical defect was a hammer toe. He qualified for and is now attending West Point Military Academy.

Summary.—The State Health Officer saw this case about the tenth day after the first symptoms were noticed and pronounced it poliomyelitis. The treatment I gave was administered with the idea that the toxins of the acute infection benumb or kill the nuclei of the cord, and that the quicker circulation is established and drainage of the cord effected, the quicker the cure will be. I have also found that early attempts at muscular training of the affected parts, without tiring the patient is very effective.

EDWIN R. LARTER
Niagara Falls, N. Y.

PARALYSIS AFTER FALL RELIEVED BY CORRECTION OF BONY LESIONS

Report of Case

Case—Girl, aged 8. I was called January 20. She had been entirely confined to bed for months. She was unable to stand, walk, or dress herself. Her speech was becoming rapidly impaired.

History—Six months previously she fell from a verandah, a distance of about five feet, landing on the small of her back and head. She merely complained of headache shortly after the fall, but a few days after that she complained of extreme tiredness and weakness. A paralysis of both legs developed rapidly. This condition persisted practically unchanged for nearly six months, when it began to get worse showing impairment of the speech. No other form of treatment tried had produced any amelioration beyond slight temporary relief.

Examination—The physical findings were as follows: A markedly lesioned left sacro-iliac joint. The sacro-iliac joint ligaments on the left seemed to be in a weakened condition. There was also a considerable amount of muscular tension in the cervical region. There was a scar an inch and half long midway between the crest of the left ilium and the posterior superior spine on the same side. All other examinations were negative, except for the paralysis and speech symptoms. Family history negative.

Treatment—The treatment consisted of specific adjustment of the sacro-iliac lesion, and general relaxation of the upper cervical region.

Progress—Almost immediately the child commenced to improve, and was able to stand alone after the sixth treatment. After the twelfth treatment, improvement evinced itself by a further diminution of the paralysis. The atrophied condition of her legs showed rapid and marked improvement, as did her speech. In all, seventeen treatments were given. Within three months the patient was perfectly normal. The lesions in her spine did not recur.

Summary—This condition was undoubtedly caused by the fall and directly related to the bony lesions. A diagnosis of chorea had been made before I was called, on account of the choreic symptoms, but these symptoms, in my opinion, were caused by the structural abnormalities.

At this time, eight years later, she is reported as being a "great big athletic girl" of 16 years, apparently perfectly normal in every respect, and a member of a girls' basketball team.

EDMUND A. ROE,
Edmonton, Alberta.

Athletics Section

RADIOGRAPHY AND ATHLETIC INJURIES

C. G. BECKWITH, D.O.
E. R. HOSKINS, D.O.
Chicago

The majority of athletes are amateurs, trained to a greater or lesser degree to compete in strenuous activity in which muscle coördination is a prime factor. Untrained participants are more susceptible to injury than those who have been drilled and hardened and who know certain little tricks in using hands, shoulders and other parts of the body in such a way as to minimize the possibility of injury. The majority of contestants, however, lack this training and expose themselves unduly to forces and strains that may result in injury.

Bearing this in mind it is readily conceivable that the untrained or even the trained athlete, influenced by fatigue or muscle imbalance, may subject himself to such activity as to cause a bruise to soft tissue or bone, or even a dislocation or a fracture. To be able to differentiate the type of injury is just as important as to be able to recognize it. Treatment is naturally different in the presence of a fracture from that of a bruise. To facilitate this differentiation, the x-ray is brought in.

There are a few simple rules in the taking of roentgenograms which, if followed conscientiously, will afford much valuable information as to the type of treatment essential for an injury. These rules relate to the film, the tube, the exposure, the patient.

Common sense dictates that the film should be centered beneath the part desired. The localization of the film is comparatively easy inasmuch as the injury is rarely as large as a film. In using the Bucky diaphragm, it is to be remembered that the greatest amount of radiation strikes in the center so that the film and the patient are centered in relation to it when used.

Tubes are large in relation to the target and it is the target that must be centered in relation to the part, rather than making a rough estimate as to the tube. A little care here will materially influence the nature of the film.

The voltage, amperage, tube distance and time of exposure all vary with the part to be filmed and with the patient. Judgment on the part of the operator in using just enough exposure to get through the part is of great importance. As in a microscopic field, too much or too little light does not give the detail that proper illumination affords. There is no rule of exposure that holds absolutely. A combination of experience and familiarity with the machine makes for good, readable films.

The position of the patient is important, as it may make the difference between a picture which gives the information desired, and one that is useless. A general rule for the placing of the patient is to place the injured part nearest the film. The source of x-rays is distant from the film and they must pass through the patient before reaching it. With the injured part close to the film, detail is not lost as the rays pass through other tissues.

Considering the upper extremity, let us review the methods of placing patients to obtain a film that has a minimum of overlap and will be of aid in diagnosing the pathology.

Shoulder.—To take a picture of the sternoclavicular joint, it is necessary to have the patient prone and the unaffected shoulder elevated to throw the vertebral column out of the way. With the plane of the body at about a thirty degree angle with the film, accomplished by the use of pillows, the affected part is brought in close contact with the film. For other shoulder injuries, the patient is placed on his back with the part in question centered in relation to the film and the table and the tube centered in relation to the site. Thus it is readily seen that the position of the tube will vary with the part concerned. Tenderness can be used as a guide and it will determine whether the tube should be centered *with its central beam of ray perpendicular,* over the clavicle, the acromioclavicular articulation, the head of the humerus or the scapula. Conditions particularly prone to occur in this region aside from gross fractures and dislocations, are: periosteal elevations, usually a sign of an incomplete fracture, and separation of the acromioclavicular

articulation. Irregularity of the periosteum at a point of tenderness with or without a fracture line requires immobilization in contrast to a separation of an articulation which needs correction and then rest, if severe enough. If there is doubt as to the spacing of a joint, a film of the opposite side, taken in the same manner will afford a normal for comparison.

Elbow.—Two views are readily obtained and should be taken as a routine procedure. The anteroposterior view is taken with the arm fully extended, *the palm as nearly horizontal as possible* and the bones of the arm and forearm as nearly parallel as possible. This will clear the condyles and the radial head and will afford good position of the ulnar head. The lateral view of the elbow is made with the forearm flexed to an angle of ninety degrees with the arm and with the *hand perpendicular to the table,* the thumb above. In instances in which flexion of the elbow is limited, the forearm should be bent as far as is possible with safety and comfort of the patient. This flexion of the elbow throws the olecranon process of the ulna out of its notch on the humerus and minimizes overlap. In cases in which fracture is not shown by this method, the part may be treated for the displacements determined to be present from radiographic and clinical evidence.

Wrist.—Films show only one dimension so that when possible and practical, two views are desirable. The wrist, like the elbow, makes this possible and should be shown in an anteroposterior and a lateral view. The anteroposterior view is taken with the palm down and *the fingers flexed so as to throw the carpals flat against the film.* A lateral view is taken with the hand perpendicular to the film.

Hand.—With the fingers spread out flat on the film, it is a comparatively easy matter to take a picture of the entire hand. Most hand films should include also a film of the wrist to determine the possibility of an involvement at that site. A lateral view of the hand is difficult to secure unless one finger is filmed. In a film to include the whole hand, overlap of the phalanges and metacarpals may be minimized by fanning the fingers in such a manner that all are exposed, one ahead of another, with the hand forming an angle of about forty-five degrees with the film.

It is of material aid to the technician to know the part that is questioned. With this knowledge, and with care to attain the best possible film of the injured part, x-radiance will be an invaluable aid in the care of athletic injuries.

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American College of Osteopathic Surgeons

A. C. JOHNSON, D.O., Editor

TRANSURETHRAL PROSTATIC RESECTION

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The gradual onset of the symptoms which indicate the beginning of benign prostatic hypertrophy probably excuses the physician for his failure to recognize this disease before serious damage has been done. The symptoms are so mild in character that the patient himself does not feel the urge to counsel with his physician. Men past fifty years of age rather feel that a slight frequency of urination, hesitation in starting the stream, with smallness of the stream, are conditions which a man should expect at that age and, because of a lack of education along these lines, give no serious consideration to such symptoms.

No doubt the development of cystoscopic instruments to their present state of efficiency has done more than any other one thing to make the medical profession "prostate-conscious."

It is highly important to both the physician and the patient that the man past fifty years of age be questioned regarding frequency of urination, hesitation, and smallness of the stream, as well as nocturnal micturition; since these are the danger signals which nature hangs out to warn us of the beginning of prostatic hypertrophy and which, if recognized, enable us to prevent the sequellæ of this disease.

The symptoms of benign prostatic hypertrophy result from the pathological change in the vesicle orifice and the consequent interference with normal micturition. In early cases about the only symptoms of which the patient complains are those just mentioned. The symptoms may change very little for many months or even years, since the compensatory hypertrophy of the trigone and bladder are able to take care of the obstruction. The amount of residual urine is oftentimes small. While the urinary symptoms in such cases may remain slight, the spasmodic action of the trigone in emptying the bladder being more frequent and prolonged than normal, it may lead to distention of the ureters and kidney pelves and result in impairment of the renal function. Frequently patients are found who have very little to complain of, in whom a pronounced renal impairment is present. As a rule, however, there is a gradual increasing obstruction with more or less residual urine and sometimes dilatation of the bladder. The patient may put up with the increased frequency and difficulty of urination for years, not realizing the danger to his kidneys, heart and arteries. Hemorrhage may come on suddenly and play a very important part in the disease and is a relatively common symptom in benign prostatic hypertrophy.

With the onset of infection, the symptoms are usually aggravated and the case immediately assumes a much more dangerous aspect. The greatest danger with infection is the development of complications such as pyelonephritis, urethritis and periurethral abscess. Some form of cardiovascular disease has been found to be present in at least fifty per cent of the cases, the most common being, arteriosclerosis, hypertension, myocarditis and valvular heart lesions. It is extremely important, therefore, that the physician should not pass lightly over the symptoms of hesitancy or slight frequency of urination, and especially of nocturnal micturition in men past fifty years of age. These rather mild symptoms should suggest prostatic hypertrophy and, even though the physician does not possess a cystoscope with which to examine the posterior urethra, prostate and bladder, he can by simple office procedures determine the presence of prostatic obstruction. The prostate should be examined by palpation through the rectum to determine its size and consistency; although one should remember that it is not necessary to have a palpably enlarged prostate in order to produce a urinary obstruction. The patient should be instructed to empty the bladder and immediately thereafter a soft rubber catheter should be introduced into the bladder and the amount of residual urine measured. In all these cases with residual urine a kidney function estimation should be made. If less than 65 per cent of the dye is returned in two hours a blood chemistry test should be made. This kidney function estimation is done by injection of one c.c. of phenolsulphonephthalein intramuscularly and estimating the percentage of dye returned in the following four one-half hour periods. The percentage of dye returned is a reliable estimation of the amount of damage to renal function.

In the event the physician does not do cystoscopic work, the patient should be referred to one equipped to make such an examination to determine the character and size of the obstruction, and kind of treatment indicated.

It is commonly assumed that an enlargement of the entire prostate gland rather than an enlargement of a small portion of it is necessary to produce a urinary obstruction. Rectal palpation may reveal considerable hypertrophy of the gland and still the patient may have no urinary symptoms. Although all of us appreciate the small diameter of the urethra, we oftentimes overlook the possibility of the small amount of tissue which can produce an obstruction in such a small tube. Experience has shown the presence of various degrees of urinary obstruction with little enlargement of the prostate gland which can be demonstrated by rectal palpation or cystoscopic examination. A small amount of hypertrophied prostatic tissue can be so situated as to cause an extensive obstruction and sometimes complete occlusion of the urethra.

It has been a well-known fact for many years that the amount of obstruction to urinary overflow at the neck of the bladder causes symptoms rather than the size of the gland.

The performance of a major surgical operation to restore normal urinary function would appear unnecessary if the tissue causing the obstruction is so situated as to be accessible through the urethra.

Although urologists have been of the opinion for

many years that major surgery to restore normal urinary function is illogical, nevertheless until comparatively recently prostatectomy has been the accepted procedure. During the past several years many men have attempted to devise instruments suitable for the removal of prostatic obstruction through the urethra.

First among the many instruments used for this work is the one designed by Young, which he designated as the punch. The punch operation is a brilliant one and, in the hands of an expert, has done effective work; but it is a dangerous procedure in the hands of one unskilled. Young's punch operation was limited to the treatment of prostatic fibrosis. In an effort to make Young's punch more precise, McCarthy added the forward looking telescope. Caulk added the modified cautery appliance and demonstrated the feasibility of removing prostatic obstructions. Following Caulk, Day modified the McCarthy visual punch and emphasized the marked saving in time by dehydrating the tissue before punching it out, obviating the necessity of secondary desiccation in the presence of active bleeding. Kirwin pointed out an objection to the hot cautery of Caulk on the ground that the hot blade comes in contact with wet tissue and immediately generates steam and scalds the adjacent surfaces, causing subsequent scarification and contraction of the mucous membrane. To Collings goes the credit for the development of the well-organized technic of excision of the prostatic bar through a cystoscope with a high-frequency current of the acusector type. Further development of an instrument, using the acusector type of high frequency current, was made by Stearns and modified by Davis. From the experiences of these men, McCarthy has developed an instrument which appears to have eliminated the objectionable points of the others, and in addition supplied flexibility impossible with the fenestra type of instrument. The successful use of the McCarthy electrotome is dependent upon the development of a suitable high-frequency current of the acusector type which will cut under water with a minimum amount of coagulation.

There are two types of high-frequency machines now available which produce the cutting or acusector current; the tube type machine cuts rapidly with practically no coagulation, and the spark-gap generator which cuts slower and produces more coagulation than the tube type machine. The ideal type of high-frequency machine capable of providing a cutting current suitable for prostatic resection has probably not yet been developed. The question as to whether the tube type or the spark gap type machine is the better is still unsettled. Since it is not the purpose of this paper to introduce a discussion of this character it will suffice to state that there are many outstanding men who are using each type of instrument and obtaining satisfactory results.

Bumpus[1] describes the requisites which a cystoscopic instrument must meet in order to make it suitable for transurethral resection of the prostatic gland:

"1. They must permit adequate vision of the operative field, so that the obstructing tissue may be clearly seen and its position in relation to other structures accurately determined in order that resection may not be undertaken in cases in which the amount of obstructing tissue is so extensive as to demand a major rather than a minor surgical procedure for its removal. It is not sufficient that the tissue to be excised is seen only after it has been grasped blindly by feel and it projects into the lumen of the instrument, for it is before it is engaged by the instrument, not after, that its relation and position to adjacent structures can be determined. When this cannot be done there is always danger of engaging tissue in the instrument other than the obstructing tissue, the removal of which may cause perforation of the bladder or wall of the urethra.

"2. The instrument employed should be capable of removing as much tissue as is desired at the time of operation, for, if the obstruction is not completely removed, residual urine will persist and the symptoms for which the procedure was undertaken are likely to be aggravated rather than improved. Most failures can be attributed to not removing a sufficient amount of tissue to relieve the obstruction. This fact has made the control of bleeding by the actual cautery unsuccessful, for if instruments are designed on this principle a dry operative field is imperative, and, if multiple excisions are carried out, the entire instrument becomes overheated and is likely to burn the mucosa of the urethra.

"3. Complete control of hemorrhage is imperative, for elderly patients do not stand the loss of blood well and, if hemorrhage occurs, they are likely to resist infection poorly. Even slight bleeding to formation of clots, and contraction of the bladder in an effort to expel them keeps up the bleeding and so a vicious circle is formed." (pp. 42, 43.)

"Instruments for transurethral use have now been so perfected that in 210 cases of prostatic hypertrophy in which the treatment was surgical during 1931 at the Mayo Clinic, transurethral prostatic resection was performed in eighty-seven cases (42 per cent). That this procedure will ever completely replace prostatectomy is extremely doubtful, for in many cases the hypertrophy is so extensive as to make the removal of even the obstructing tissue inadvisable through such a small tube as a cystoscope. These large glands, however, do not constitute the majority of cases, and there can be little doubt that the transurethral correction of obstruction will be found applicable in an increasing number of cases. Proper selection of cases, therefore, is important, and careful examination of the prostatic urethra must be carried out before this method of treatment is undertaken, for the portion of the gland that is causing the obstruction, not its total size, must determine the method of treatment to be employed." (pp. 41, 42).

The instrument designed by Braash and modified by Bumpus at Mayos is satisfactory in their opinion. To my mind the McCarthy visual prostatic electrotome is the instrument best suited for this work.

PREPARATION OF THE PATIENT

Regardless of the type of obstruction or the kind of operation that is to be performed, it is of paramount importance that these patients be properly prepared for operation. The decompression of the bladder with a retained urethral catheter should be carried out carefully to avoid anuria due to the congestion of the kidneys because of sudden release of back pressure. The bladder should be carefully irrigated two or three times daily with a weak solution of potassium permanganate, and a urinary antiseptic should be administered orally in the form of hexamethylamine and sodium acid phosphate or one of the newer urinary antiseptics such as pyridium or caprikol. A careful check should be made on the renal function which should be stabilized by the administration of large quantities of fluid in addition to the intravenous administration of glucose which is an extremely valuable diuretic. A careful study of the nitrogenous constituents of the blood, namely: the nonprotein nitrogen and urea, in the event the renal function tests show a functional disturbance of the kidneys by returning less than 65 per cent of the dye, is essential to having a thorough understanding of the patient's condition. It has been the experience thus far that the incident of postoperative infection is negligible when the patient has been properly prepared, probably because the lymph channels and blood vessels are sealed by dehydration as a result of the operation.

In most well-regulated urological clinics it has become a routine practice to perform a bilateral vasectomy as a part of the preparation of patients who are about to undergo instrumentation and prostatectomy. There seems to be a well-founded belief that a bilateral vasectomy has a beneficial effect upon certain types of vesicle neck irritation, and has a tendency to reduce the size of the prostate. Since prostatic disease is rare prior to the age of fifty there would naturally be little objection to the consequent sterility following vasectomy. Although this procedure is not essential to the proper preparation of the patient it would seem to me a wise one.

ANESTHESIA

Sacral block is being used by a number of men and has given very satisfactory results. The technic is carried out by placing the patient in a slight Trendelenberg position flat on his stomach on the operating table and 20 c.c of 2 per cent neocaine is injected into the sacral canal through the sacral hiatus, 2 c.c. of neocaine solution are injected into the first and second foramina and 2½ c.c. are injected at the exit of the fifth lumbar nerve. In the hands of an expert this procedure is not a simple one and presents many difficulties. For that reason the anesthetic of choice is a spinal analgesic of .15 grams of neocaine

[1]Bumpus, Hermon C., Jr.: Minor Surgery of the Urinary Tract. W. B. Saunders Co., Philadelphia, 1932.

diluted in the spinal fluid and reinjected into the spinal canal between the fourth and fifth lumbar vertebræ. The patient is then placed on his back in the Trendelenberg position. The analgesia is effective for a period of one to one and a quarter hours, which is sufficient time to carry out the procedure.

THE OPERATION

After a careful cystoscopic study of the portion of the gland causing the obstruction, the sheath of the electrotome is introduced into the bladder and the bladder distended with sterile water. The operating unit of the electrotome is introduced into the sheath of the instrument. Beginning on the floor of the sphincter in the midline, with the cutting loop behind the portion of the prostate obstructing the sphincter and the sheath of the instrument far enough forward to enable the operator to see the verumontanum, the cutting loop is brought into contact with the vesicle aspect of the obstruction and with the cutting current turned on, the loop is brought forward slowly and steadily until it is completely within the sheath. Immediately after each cutting with the electrotome whatever bleeding points are present are immediately coagulated with the coagulating equipment. Usually three furrows are cut out of the floor of the sphincter and after all bleeding is arrested first one lateral lobe and then the other is completed in a similar manner. The operator must be extremely careful to avoid damage to the verumontanum beyond which point cutting is absolutely contraindicated, since damage to this portion of the prostatic urethra injures the external vesicle sphincter and produces incontinence. After this stage of the operation is completed and the bleeding controlled, a No. 24 whistle-tipped catheter is passed into the bladder.

POSTOPERATIVE CARE

McCarthy recommends that irrigation should be practiced every half-hour or at longer intervals according to the needs of the case, to obviate blocking. Any obstruction to drainage should be immediately corrected. Urinary antiseptics are administered routinely. The catheter is allowed to remain indwelling for two to four days according to whether the drainage is blood-tinged or clear. Before removing the catheter it is wise to fill the bladder to capacity and encourage the patient to void following its removal. After the catheter has been removed the patient is allowed to sit up in a chair and to be up and about the hospital on the fifth or sixth day and can safely be dismissed on the seventh day in the event there are no complications from infection.

CONCLUSION

Although the operation itself might be considered a minor surgical procedure it would be inadvisable for those who are not experienced surgeons to attempt to use it because of the ever-present danger of bleeding, which might possibly demand a prostatectomy to control it. One should be thoroughly familiar with the use of the cystoscope and the anatomy of the prostatic urethra as well as the pathology of this portion of the urethra. The operation requires hospital care and should not be attempted in the office. The operation can best be carried out under a spinal anesthetic, which in itself makes it practically impossible to carry out the procedure in the office.

The economic side of the treatment of prostatic obstruction is an extremely important one, since a patient is seldom required to remain in the hospital more than a week; whereas it is not at all uncommon for a patient to be hospitalized from four to six weeks following a suprapubic prostatectomy. The operative mortality is practically nil under this procedure, even though the operation has been carried out upon those cases considered extremely bad surgical risks for a prostatectomy.

It is doubtful whether this procedure will ever entirely supplant prostatectomy; however, with the improvement in the technic as well as the instruments there will doubtless be an increasing number of cases operated on by this method as time goes on.

American Osteopathic Society of Proctology

GALVANIC ABSORPTION OF STRICTURES OF THE ANORECTAL REGION*

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Strictures in the anorectal region may be due to childbirth or other trauma, ulceration, malignancy, or too radical operative measures.

In any case, the actual constriction is produced by the contraction of scar tissue. The condition should not be confused with contracture of the sphincter muscles.

The incidence is about five cases in women to one in men.

The lesion usually involves the mucous membrane, hence is above the pectinate line; although it sometimes occurs at or below that line.

If the stricture can be reached by digital examination, it will usually be felt as a sharp-edged ring, but it may be a fusiform contraction of the canal of greater or lesser length. The caliber of the opening may be from the size of the lead in a pencil up to nearly the normal size of the canal.

Dilatation is the proper procedure with contracted sphincter muscles, but is of no permanent value in case of stricture, as the torn edges will unite again and probably will contract the opening still more.

Electrolysis, produced by the negative pole of the galvanic current, will cause a softening and disintegration of scar tissue through disruption of its molecules; and there is not the tendency for further contraction such as would occur following a stretching or cutting operation.

If the caliber of the stricture is small, the work should be begun with the olive-tipped urethral electrodes. After working up to the largest size in these, the esophageal bougies may be used, although their graduations are such that you will need to have extra tips made in the intermediate sizes. In other words, there should be no great increase in size from one electrode to the next.

The secret in successful stricture work is to use very mild currents. The mild current disintegrates the molecule, without charring the tissue. Too strong a current will only increase the scar.

The strength of current should be gauged by the square surface of the electrode. With the smallest tip, about two milliamperes of current should be used, increasing one milliampere with each increase in size of tip; never, however, going beyond the tolerance of the patient.

After the caliber of the stricture has been determined, the next larger size in the tips should be chosen for the treatment. Fasten a large dispersing pad on the lower abdomen and, holding the olive-tip firmly against the stricture, increase the current gradually until the proper amperage is reached. The tip should be allowed to dissolve its way through, like a warm iron melting its way through a cake of ice. Much force should not be used. Several minutes may be consumed in the passage, depending upon the density of the tissue.

After passing the constriction, the electrode should be withdrawn in the same gentle manner.

At each succeeding treatment, use first the electrode with which the previous treatment was concluded, then repeat the maneuver with the next larger size.

The treatments should be given five to seven days apart, until all possible improvement has been attained, then at such intervals as necessary to maintain the potency of the canal.

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*Read before the Proctology Section, A.O.A. Convention, Detroit, 1933.

Subnormal temperature associated with any acute infection should be viewed with apprehension.—*College Journal.*

American Osteopathic Society of Ophthalmology and Otolaryngology

THE INTERNIST AND HIS RESPONSIBILITY IN EYE, EAR, NOSE AND THROAT DISEASES*

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The general practitioner is the first to examine the child. It is preëminently his duty to account to the parents for the status of the visual organs with the same exactness that he is expected to exercise in the examination of every other part of the body. Service to humanity through the conservation of vision, both by prophylaxis and cure, will increase as the pediatricians and internists in hospitals, clinics, and private practice, are brought in closer coöperation with the ophthalmologist. There is too much casual, uncritical, superficial examining and treating of eyes by the general practitioner. We are doing a commendable work in the examination of the eyes in children of school age, but in many eye conditions, the third grade is too late to begin effective treatment. If detected and treated during the first three years of the child's life such conditions could be removed, which would prevent thousands of cases of total or partial blindness.

In most of the larger cities there is no routine examination of school children until the child is in the *third* grade, or about eight years of age, and not again until the child is in the *sixth* grade. Then discovery may be too late. Parents should be educated to have the vision of their children tested by a competent ophthalmologist during the preschool period. The use of the refractoscope enables us to detect errors of refraction from six months of age and on. Congenital amblyopia, the cause of ninety-five per cent of strabismus, occurring many times before one year of age, and practically always before the third year, can be discovered by the use of the ocular microscope and the slit lamp during this period, and steps taken to develop the amblyopic eye and prevent strabismus.

School and other routine examinations are a step in the right direction, but we cannot depend upon social agencies or school medical inspectors to do all, or even a safe part of the sight saving preliminaries. The eye should be examined by the best skill and equipment available, and certainly deserves as full consideration as any other organ in the body.

The economic loss to the individual adult with poor vision, and to the community in which he resides is appalling. Our clinics teem with the near blind, many of whom are referred by the general physician from his private practice. Some perhaps have been under his care during periods of variable length for treatment of a systemic disorder. An incipient visual loss now exists, secondary to the systemic disturbance, and without funds to pay the fees of a consultant in ophthalmology the victim is sent to the clinic. He soon acquires the habit of "padding" his answers to the social secretary and becomes in too many instances an unwarranted lien on his fellow taxpayer. I believe that the physician should retain his contacts whenever possible with patients who have even very limited funds and set aside a half day or a few hours per week for the care of a few, at least, of the low-fee group.

This plan will not only help the patient retain his self-respect, encouraging him toward self-support, but also will remove an otherwise unnecessary burden from the treasury of the community. The community chest should be for deserved charity only, and the general practitioner and ophthalmologist should have a clinic, even if it is not always self supporting, if they are not too busy with outside free clinic affiliations.

Checking up on two thousand cases of blindness in a group of records the past year, nearly 200 were blind from glaucoma (only a few secondary to previous eye diseases), 327 had partial or total loss of sight as a result of ulcers, or injuries to the cornea following entropion and trichiasis due to trachoma, sties, chalazia, and other irregularities on the lids. Diseases of the fundus including optic atrophy, choked disc, retinitis and choroiditis were found in 532 cases, all of which were of systemic origin with the exception of seven who had fractured skulls. There were 14 cases of congenital cataract, 3 juvenile cataract, and 861 cases of every type of senile cataract. Injuries such as perforation resulting in phthisis, bulbi; siderosis, without collapse from undetected foreign bodies; true keratitis of syphilitic and tubercular origin, progressive myopia; iridocyclitis with occluded pupil; detached retina; orbital angiomata, congenital and toxic amaurosis made up the balance of more than 100 cases.

The percentage who visit the general physician first is very large, and emphasizes the need of careful examination and cautious judgment in the early disposition of these patients. We know from experience that where appropriate treatment is given in time that a small number only will suffer loss of practical vision.

It is preëminently the duty of the oculist and general practitioner to require an early accurate examination of the eyes. Motion picture delineation of the eye movements, not observable by any other method, discloses irregularities that point to imperfect fixation of the eyes—poor binocular coördination, the result of defective vision, congenital, or acquired months and years before there occur symptoms of eye trouble.

The internist, neurologist, pediatrician, these are the physicians by whom the public is guided as to health of body, from the cradle to the grave. On you rests the responsibility of success or failure of vision, as well as the health or disease of all other parts of the body. It is normally within your scope to inspect and palpate the surface areas of the orbital contents and appendages, whether in adult or child. Are you trained to do so intelligently? Have you had the experience afforded by long years of study and practice on the eye to enable you to interpret the meaning of premature wrinkling of the lids, a prodrome characteristic of incipient nutritional disorders: the "boardy" stiffness of the lids significant of a morbid circulatory change in the arterial and venous systems? Does an analysis of a "tic sensation" not evident by either inspection or palpation tell you of an astigmia; hyperopia; pressure on the orbicularis nerves; eyeball disease; general primary nervous disorder or one secondary to a low plasma-combining power of carbonic acid?

Too, it falls within your privilege and duty to test the vision of the children and adults to whom you are the family adviser. You understand the Snellen test chart, and you know that 20/20 is normal vision. Do you have in mind that in buphthalmos (congenital glaucoma) you may find 20/20 vision and still the child have lost 9/10 of its vision? Have you had patients with choked disc who evidenced normal vision? In chronic glaucoma the field may be contracted to 1/10 of normal and still read 20/20. Numerous scotomata from retinal disease; hemianopsia as in pituitary tumors may have 20/20 vision. Many patients have even 20/15—one-third better than normal—and have a gross error of refraction, which may be the cause of the irritable, slow-in-school child.

Perimetry is a common and simple procedure. True, you cannot afford to own the expensive equipment necessary, but you are interested in making an examination so you use a black sheet on the wall and you proceed to give the patient a "clean card' when perhaps the blind spot is irregular in shape or increased in size, indicative of a disturbance along the course of the nerve. Perhaps the test does not evidence a blind spot, as in certain skull fractures due to imperfect monocular fixation, and requires binocular fixation tests with the campimeter. If you had this invaluable aid to diagnosis, do you know the field limitations of the 1, 2, 3 and 4 mm. test objects? and would you conclude the presence of disease because the smaller one tested a "one-third loss"? Would the outlining of a scotoma with either the perimeter or the campimeter, and your inability to find evidence of disease with the ophthalmoscope bring to mind a possible toxic source, as a Volstead prescription; home brewed or distilled beverages; the use of nicotined or denicotined tobacco, or any other poison formed within, or introduced from without the body?

The most inspiring moment of your life was the day you saw the fundus for the first time through the ophthal-

*Prepared for the Eye, Ear, Nose and Throat Section, A.O.A. Convention, Philadelphia, 1930.

moscope. You feel that you must glean the facts made possible through the use of this instrument. The disc is pale; you think of optic atrophy, yet the pallor may be but another evidence of a general pallor due to anemia or to the blond characteristic of the individual. Is it a primary or secondary atrophy? Can you detect the presence of glial fibers due to a previous inflammation? Are you familiar with the differences between the nerve head in syphilis and that due to a brain tumor or a cardiorenal complex? Is there "cupping" of the disc? Is it one of the many varieties of the physiological cupping or is it the result of an old iridocyclitis or an active or quiet glaucoma? Can you discover scar remnants along the blood vessels, microscopic hemorrhages, possibly imperceptible simple exudates, the tombstones of previous local pathology, but of general etiology. Are the veins dilated, tortuous, due to atony of the walls? Is there an irregularity or angularity of the walls due to tuberculosis or syphilis? Are the arteries small, straight, or irregular because of an irritable nerve group or endarteritis, secondary to a high N. P. N. or hyperglycemia or a previous attack of pyelitis? Do you know how to use the ophthalmoscope in the diagnoses of tumor, detached retina, embolism of the foveal artery, colobomo of choroid, peripheral or central choroiditis. You now turn in a "plus" on the ophthalmoscope and discover vitreous "floaters" or floating bodies of round, irregular, or elongated-thread form, and immediately you have explained a previous or present local or general disease, or both. A "plus 20" is now employed; the lens appears grey. Is it the grey of premature or normal senility? Perhaps it is a cataract or merely an opacity of ancient etiology and not progressive. Possibly in another patient you do not get an eye-ground reflex, neither do you get a white or silver-grey reflex from the lens, due to an amber or black lens, the result of hemorrhage, or not uncommonly, a pigment deposit of a foreign body or of hemogenic origin.

The instrument is now focused on the pupil. On inspection you were not positive that the pupil responded to light normally or regularly, but now you discover a "ragged" point on the margin of the pupil, and you wonder if it is one of the many points or angles of embryologic history at the site of an otherwise might-have-been coloboma of the iris, or is it, in the absence of confirming history, the mark of an old iritis, iridocyclitis or acute inflammatory glaucoma, or of the entrance point of an overlooked foreign body?

With the "plus 20," you now examine the cornea at 2 inches distance. Leucomata, nebulae, and maculae are the common opacities and imply the results of injuries, ulcers, and scars from foreign bodies. However, we must not lose sight of an initial keratitis of peripheral or central progression and its systemic etiology. Punctate opacities on Descemet's membrane may point to a sensitization in earlier history, secondary to a food allergy or to an anaphylaxis due to protein absorption as from an iridocyclitis in the fellow eye, or to katabolic changes elsewhere in the body. Arcus and annulus senilis are, as their names signify, a degenerative change in the cornea but usually a local expression of a general degenerative change.

Observation is used for the purpose of detecting a possible atrophy of the iris; hyperplasia of the ciliary body with an increase of the vitreous and consequent high tension, or perchance a decrease of the vitreous and ocular tension with attendant losses in the retinal elements and dimming of the vision, a complex that is confusing, and not infrequently leads to the faulty diagnosis of cataract, should the lens be grey, or to glaucoma, basing the diagnosis on the increased ocular tension.

You cannot be expected to detect tubercles, the evidence of a lurking tuberculosis nor can you hope to detect the presence of a less malignant infiltration of cells or fluid in the lymph spaces of the cornea, as this is the role of the slit-lamp and the corneal microscope in the hands of a skilled ophthalmologist. However, it is well within your scope to think of the possibility of the presence of any pathology, regardless of nature or cause.

A very common clinical picture which is met in everyday practice, is the one of muscular imbalances. This condition is very troublesome both to the organs of vision and to the general nervous system, and to all of the functions of the body parts.

Binocular vision, or the consciousness of a single image through the use of both eyes is the result of the "training" of the 12 muscles which turn the eyeballs in their range of movement to varying degrees of convergence. At birth the eyes turn out, and double-vision is the result. During the early months of the childs' life the muscles of the two eyes become capable of turning in, to parallelism, and finally, to convergence. From now on, to death, there is a battle to maintain a proper degree of convergence, for in this way only can both eyes receive the light, forming the images of the object "converged to," on "identical areas" on the retinae, and be fused in the brain as a single image.

Remember that only so long as the two images are equal in size, shape, color and definition on the retinae, will the muscles receive equally tonic impulses and hold the eyes in convergence fixation. The moment the refractive mechanism of one eye fails to focus the image as sharply as in the fellow eye that image will differ from the image in the fellow eye in size and definition as in hyperopia and myopia, and will also differ in shape, if astigmia is present. If chromatic aberration, or lowered color perception, in one eye, exists (especially in the younger individual) the images will differ in color intensity, and may effect a similar result to that of an error of refraction, that is, the "weak image" eye being unable to "fix" in convergence will turn away in the direction of the strongest pull, which is usually in adduction, or toward the nose, producing the clinical picture of "crossed-eyes," squint, or one form of strabismus.

In addition to a discernible squint there are "tendencies" away from convergence not discernible by the unaided eye of the ophthalmologist. These may be excessive convergence, esophoria; or excessive divergence, exophoria, or one eye may tend to turn above the level of the line of vision of the fellow eye, or hyperphoria. Barring lesions of pressure in the cervical and upper dorsal regions and any foci of infection or irritation in the mucosa of the nose, throat, and ears—and even in the conjunctivae, and barring any systemic disorder, it may be said that all of the duction or "pulling" insufficiencies found in any single eye muscle, or between the "balancing" forces in all of the eye muscles, are due to a faulty refraction or amblyopia in one eye as compared with a more normal fellow eye.

The responsibility of the general practitioner when confronted with the solution of this problem is clear. There is no alternative. The internist should call counsel that the proper treatment may be given, and in many instances the combined services of the internist and ophthalmologist will be required to effect a satisfactory result.

May I add here that any treatment that does not take into consideration the amblyopia, congenital or acquired, or possibly an incipient congenital cataract, or that does not evaluate the refractive powers of the two eyes, is but temporizing and inclines toward failure with a certain degree of permanent impairment of vision and a deformity which can be measured only in a world of economics—the consequent losses to the patient.

It has not been my purpose to unnecessarily alarm you. I fully appreciate the situation which exists in many communities, that is, the lack of osteopathic counsel in these specialties. This, at present, unavoidable misfortune emphasizes the value of the motto of the profession, "Adjustment with conservation," and commands that the osteopathic physician turn again and again to the admonition of our founder, "dig on!"

301 Black Bldg.

Germs Not Killed by Extreme Cold

Germs were frozen for weeks in liquid helium at a temperature of 450 degrees below zero F, in tests at the University of Toronto. When they were thawed out they were alive and able to multiply as though nothing had happened to them.

These demonstrations show that although cold will preserve foodstuffs it will not kill the germs of decay that lurk on them.

The experimenters believe that these results indicate the possibility of lower forms of life migrating through space, perhaps attached to bits of dust.

Current Osteopathic Literature

Abstracted by Edward S. Gardiner, D.O.

THE COLLEGE JOURNAL, KANSAS CITY, MO.
17: 33-64 (Feb.) 1933

Urinalysis Interpretation. J. L. Jones.—p. 35.
A Clinic Report. E. V. Jones.—p. 36.
Rules of Diagnosis Based Upon Standards of Good Thinking. C. A. Tedrick.—p. 37.
From the Obstetrician's Diary. Margaret Jones.—p. 38.
An Allopathic Discovery. Y. Castlio.—p. 39.
On Getting More Students. K. A. Bush, Harper, Kan.—p. 41.
Progress of Thermogenic Therapy. W. J. Deason, Wichita, Kan. —p. 43.
Laboratory Diagnosis—Its Uses. C. A. Povlovich.—p. 44.
Physical Examination of Patients With Symptoms Referable Only to the Gastro-Intestinal Tract. C. A. Tedrick.—p. 45.
Transverse Poliomyelitis. W. J. Conner, Kansas City.—p. 47.
The Potpourri of a Potwalloper. G. J. Conley.—p. 49.
Diagnosis of Pregnancy. Margaret Jones.—p. 54.
The Healing Art as a Vocation. A. A. Kaiser.—p. 56.
Osteopathy as a Vocation. A. A. Kaiser.—p. 60.

THE JOURNAL OF OSTEOPATHY
KIRKSVILLE, MO.
40: 55-94 (Feb.) 1933

A. T. Still. H. G. Swanson, Kirksville.—p. 58.
*Aspirin. C. E. Still, Jr., B.Sc., Kirksville.—p. 61.
"Pet Peeves." H. W. Gamble, Missouri Valley, Ia.—p. 63.
*The Philosophy of Osteopathy. C. P. McConnell, Chicago—p. 65.
Blood Pressure—What to Do About It. V. A. Kelley, Waco, Tex.—p. 68.
Osteopathic Treatment in Arthritis. W. J. Deason, Wichita, Kan.—p. 70.
Malpractice. C. E. Abegglen, Walla Walla, Wash.—p. 71.
Diathermy. G. H. Kroeger, B.S., Kirksville.—p. 75.
They Still Use Calomel. G. I. Gilmore, Kennett, Mo.—p. 77.

Aspirin—Still outlines the indications and the contra-indications for the use of aspirin. Aspirin is indicated only "in persons who have a temporary pain, such as headache, neuralgia, or toothache, which occurs over a short period of time and will not recur, thus preventing the creation of an aspirin habit." It is contraindicated in the treatment of colds, infectious diseases, in combination with quinine and many other drugs. Moreover, aspirin may act as a heart depressant, and as it is a coal-tar product, it may act on the blood producing methemoglobin, and in large doses cause disintegration of the corpuscles.

Philosophy of Osteopathy—McConnell says that normal structure and function is impossible in an unharmonious environment. The reaction of the organism to external forces exemplifies an essential portion of health principles. Hence, in the words of Claude Bernard, "It is not by struggling against cosmic conditions that the organism develops and maintains its place; on the contrary, it is by an adaptation to, and agreement with, these conditions."

THE WESTERN OSTEOPATH, LOS ANGELES
27: 1-20 (Jan.) 1933

Why Are Fewer Women Studying Osteopathy? Replies from Questionnaire.—p.5.
*Encephalography. E. S. Merrill, and T. J. Meyers, Los Angeles.—p. 7.
The Endocrines in Gynecology. Harriet L. Connor, Los Angeles. —p. 9.
Peptic Ulcer and Stenosis. H. E. Lamb, Denver.—p. 11.

Encephalography — Encephalography is a reliable study used in the diagnosis of intracranial conditions, according to Merrill and Meyers. It is of inestimable value in the localization of obscure brain tumors. Air and iodized oil are used for intraspinal injection, but air is preferable. They consider the lumbar route of injection as the safest, and the symptoms following the lumbar injection are transitory and easily controlled. Trephine puncture method is indicated in a limited class of cases only.

. . . Always remember that the nervous system is at the bottom of the whole animal and other systems exist to protect it, to nourish it and to cleanse it.—F. E. Zinn, *College Journal.*

Current Medical Literature

Modern Specialism and the Narrow Outlook

Discussing "Medical Schools and the Nation's Health" before the Edinburgh Obstetrical Society, James Young, *(The Lancet,* 1: (Jan. 7) 1933), indicted specialism on several counts. The specialist loses touch with the general aspects of medical art. He is frequently summoned to the patient only when the ailment is advanced and even terminal. The specialist finds small opportunity for the study of ultimate causes and for prevention. In dealing with the surgical specialties he says that "the outstanding triumphs of modern surgery have surrounded it with a glamour that has tended to exalt it above its proper sphere in the medical field and to give its votaries a place and power which is hardly commensurate with the degree in which their craft has contributed to an enrichment of the science and art of medicine in the wider and fuller sense. . . . At the best the function of specialism is that of the expert witness, at its worst it may degenerate unless controlled, into a cruel and merciless exploitation of the public." In his opinion general medicine should have the place of primary authority and the specialisms should be contributory and ancillary.

Immunity and the Nervous System

Dr. S. Metalnikov, of the Pasteur Institute, has, during recent years, made a series of experiments in an attempt to determine the relationship of immunity and the nervous system, according to an annotation in *The Lancet, 2*: 1342 (Dec. 17) 1932.

Immunity against Gaertner's bacillus in caterpillars fails when the third thoracic ganglion is destroyed. Metalnikov therefore reasons that this part of the nervous system has some controlling influence on the reactions of immunity. Other experiments performed seemed to show that immunity reactions may be conditioned reflexes. Dr Metalnikov "may have opened up the detailed experimental analysis of why a determination to get well is as important as a good nurse in deciding the outcome of illness."

The Routine Use of Aspirin

Serious untoward effects and even death may follow the use of acetylsalicylic acid for relief in asthmatic conditions, according to an editorial writer in *Annals of Internal Medicine*, August, 1932. He refers to a case described in the same issue in which an asthmatic patient died one-half hour after he took 10 grains of aspirin. The lethal dose has been fixed at 20 grains; effects that have been observed following the ingestion of 5 or 10 grains must have an allergic basis. In another case a robust young man obtained a "cold" remedy at a drug store which contained acetylsalicylic acid in 5 grain tablets. Shortly after the ingestion of at least two of these tablets, he became extremely cyanotic and died. He quotes Walter as saying that "aspirin and the closely related coal tar products are among the most treacherous drugs employed in the therapy of asthma."

Lactic Acid and Nerve Activity

In his experiments with frog's nerve, T. P. Feng reports in *Journal of Physiology* (London) 76: 477-486 (Nov. 18) 1932, that he has found that lactic acid enables the nerve to perform continuously for long hours. He poisoned a nerve with iodoacetic acid which resulted in the inability of the nerve to endure prolonged activity in oxygen. This poisoned nerve was also much more readily asphyxiated in nitrogen than normal. When sodium lactate was given to this nerve the capacity of the nerve for prolonged activity was improved. These results, he considered, indicated that the frog's nerve is capable of utilizing lactic acid by oxidation, and that the formation of lactic acid, though not essential to nerve conduction, enables the nerve to function continuously for long hours.

Simplified Treatment of Ringworm of the Scalp

From his experience with an epidemic of tinea tricophytina capitis encountered in a negro school, Irving S. Barkdale, in *Medical Journal and Record,* Dec. 21, 1932, at-

tributes poverty, lack of sustaining food and malnutrition as predisposing factors. He found the following formula quite satisfactory as an efficacious local application:

Bismuth violet (crystals)	1 gm.
Salicylic acid	10 gm.
Alcohol 70 per cent (rubbing alcohol) qs	100 c.c.

The dye is very destructive to the tinea tricophytina capitis, and also to other tineas which affect the scalp. The salicylic acid is a kerolytic agent, and the alcohol is the solvent for the two active ingredients. He recommends the use of this application daily without the use of any dressing. He reports that some cases have cleared up after ten treatments.

Camphorated Oil in Surgery

After using camphorated oil as an antiseptic for infected wounds for three years, G. R. R. Hertzberg, reporting in *Medical Journal and Record*, Dec. 21, 1932, is enthusiastic for its use. It possesses all the attributes an ideal antiseptic should have, he says, that is:

(1) It should be strongly inhibitory to bacterial growth; (2) it should be sedative or analgesic in its effect on the torn or injured tissues; (3) it should prevent crusting and drying of the discharges so as not to occlude the drainage; (4) it should stimulate leukocytosis and rapidly sterilize and deodorize the wound; (5) it should rapidly diminish the elaboration of pus in the wound; (6) it should be possible to use it ad libitum for irrigating purposes in all types and conditions of wounds; (7) it should provide a twenty-four hour or more antiseptic action within the wound; (8) dressings or drains soaked in it should not dry or stick to the torn or injured tissues between dressings; (9) it should not hurt, burn or adversely affect the raw surface of wound or the surrounding skin in any way; (10) it should produce no toxic symptoms, either general or local.

Hertzberg has used a solution of camphor in warm sterilized cottonseed oil with considerable success in the care of a large number of lacerated, badly infected wounds from automobile accidents. Not only is camphorated oil inhibitory to bacterial growth, but it stimulates the growth of healthy granulation tissue.

Causes of Coma

In cases of coma E. D. Friedman advises in *New York State Journal Medical* 33: 132-137 (Feb. 1) 1933, that one should first examine, then diagnosticate, and finally treat. The history is especially important as to (1) the incidence of illness (otitis, sinus disease, diabetes, nephritis); (2) the presence of injury; (3) the mode of onset (sudden in apoplexy and subarachnoid bleeding, gradual in subdural hematoma, uremia, diabetes); and (4) the associated symptoms, such as convulsions, headache, dizziness and vomiting. Friedman gives a classification of causes of coma as follows:

1. General (such as alcoholism, uremia, diabetes, opium and gas poisoning, and hypoglycemic states).
2. Epilepsy.
3. Intracranial lesions with or without focal signs: (a) apoplexy; (b) meningitis; (c) abscess of the brain; (d) tumor of the brain; (e) encephalitis; (f) spontaneous subarachnoid hemorrhage.
4. Trauma: (a) concussion of the brain; (b) gross hemorrhage with or without fracture.

Fallacy of Chemical Sterilization of Catgut Sutures

After an exhaustive series of experiments and tests of chemically sterilized catgut sutures, R. O. Clock, in *Surgery, Gynecology and Obstetrics* 56: 149-161 (Feb.) 1933, has found that a large percentage were contaminated with spore-bearing bacteria. He demonstrated to his own satisfaction that the so-called chemical sterilization of surgical catgut by any method yet devised is inefficient and unreliable. He considers carefully controlled heat sterilization the only uniformly reliable and positive method of sterilizing surgical catgut sutures.

Late Intestinal Obstruction

The cause of death in untreated complete *high* obstruction (stomach and duodenum), according to Robert Elman in *Surgery, Gynecology and Obstetrics* 56: 175-181 (Feb.) 1933, is probably a physicochemical one, due to a depletion of water and salts from the blood into the vomitus or obstructed contents. The resulting dehydration explains all of the so-called "toxic" symptoms. Treatment with a modified Ringer's solution effectively restores the blood to normal, improves symptoms, and permits adequate surgical treatment without great risk. The cause of death in *low* intestinal obstruction (ileum and colon) is probably different, but as yet there is little convincing evidence that a "toxemia" is present, according to Elman. Distention plays a prominent role and the idea is expressed that a sudden release of distention may be an important factor in the fatal outcome. The operative treatment has been therefore confined in the late cases to gradual decompression of the distended intestine, strangulated bowel being merely exteriorized for later removal.

The Causes of Peptic Ulcer

The causation of peptic ulcers and their treatment are reported by Walter C. Alvarez in the *American Journal of Surgery*, 18: 207-231 (Nov.) 1932, from observations made in the clinic, operating room and the laboratory. Theories of ulcer causation are inadequate, he says, but some are helpful. Arterial disease may be a cause of ulcer, although in some cases the arterial changes are found only in or around the floor of the ulcer and therefore must be secondary to the inflammation. Ulcers which form late in life may be due to arteriosclerosis. The infectious theory has a short-coming in the fact that ulcer is three times as common in men as in women.

There is an ulcer diathesis. "The individual . . . is often the keen wide-awake type of man who drives himself all day and part of the night, who responds too much to [external stimuli] and who does not know how to relax." Hyperacidity is not the only cause of ulcer for recent studies show that gastric ulcers are associated on the average with acidity slightly lower than normal. There are several causes of ulcer and several types of the disease in the world. Why the stomach does not digest itself has puzzled investigators for many years. The most reasonable explanation seems to be that the living cell is surrounded by a lipoid that is impervious to a protein-splitting ferment. Interference with the blood supply to the gastric mucosa subjects it to the action of the ferments with formation of ulcers. It has been noted that in some cases drinking of much cold water by overheated persons has injured the cells of the mucosa to such an extent that they later succumb to the digestive action of the gastric juice.

Trauma has some influence in the formation of ulcers. However trauma due to the passage of food over the mucosa is not necessary to the formation of ulcers. Pathologists have often found an ulcer on the summit of a benign gastric tumor.

What happens to patients with ulcer to upset the mechanisms which normally prevent the gastric juice from acting on the mucosa? Alvarez ventures some guesses. The importance of nervous and psychic factors enters here. A man whose ulcer has been quiescent for some years will experience some psychic shock; he will be upset by some crisis in his love or business life and within a few hours be suffering with pain. Ulcer is common in patients dying with brain tumor. What is the mechanism in these nervous influences? 1. Psychic stimuli of a certain type increases the acidity and peptic activity of the digestive juice. 2. Smaller amounts of mucus and other protective fluids may be secreted. 3. Ischemia of the tissues may be produced by a spasm of the blood vessels or of the muscularis mucosae or the main muscular wall of stomach and bowel. 4. There may be an "emotional drying up" of the pancreatic and biliary secretions which is a sure way to produce ulcers. 5. Emotion can produce a pylorospasm with stagnation of gastric contents and a resultant increase in acidity.

Many problems enter into the subject of treatment. Some patients get along as well with nerve sedatives, soporifics and rest as with alkalies and diet; and the taking of an hour's rest after each meal sometimes helps greatly. A simple life, mentally and physically, is to be desired. Active research must be made to find some sure method of lowering the digestive power of the gastric

juice. So far, fat has been the most satisfactory secretory depressant. It lowers the acidity and remains long in the stomach. A little olive oil at bedtime or some other fat has been recommended. Food should be given at frequent intervals. During the past two years physicians have experimented with mucin, but Alvarez considers that mucin is not a good buffer for hydrochloric acid, and moreover the mucin thus far has been unpleasant to take. What little results it has had is probably due to the peptone mixed with it. The ulcer diet should be smooth and free from rough indigestible particles since an ulcer that begins to heal is covered with a layer of epithelium only one cell deep, and such a membrane can be easily rubbed away. Fats and oils are particularly useful, especially at night when they are most needed to inhibit secretion.

Gastroenterostomy is the operation of choice, but there is a danger of a jejunal ulcer developing as a postoperative complication. One way to help prevent this would be to advise the patient to continue for several weeks with frequent feedings until the gastric and intestinal mucosae have lost their sensitiveness to acid. Alvarez advises the surgeon to sew in a catheter with its tip near the stoma, and to start immediately after the operation a drip consisting of a solution of peptone. This would be kept up for several weeks until the mucous membranes had lost their sensitiveness to the acid. This would lower the patient's susceptibility to recurrent ulceration.

He has no confidence in atropin. The use of alkalies cannot be pushed too far, as an alkalosis might be produced. Also there is more acid forced down to neutralize the alkali.

Circulation of the Head and Neck of the Femur

Eugene W. Wolcott made a study of seventy-nine cases of fracture of the hip which he reported in the *Journal of the American Medical Association,* 100: 27-34 (Jan. 7) 1933. An analysis of the age, type of fracture, roentgen observations, character of the treatment and end-results was made. In the four nonunion results in cases in which the Whitman abduction treatment was used gross and microscopic studies of the removed ligamentum teres and femoral heads as well as examination of the area of nonunion were made in each instance. He concludes his article as follows:

"We have proved to our own satisfaction that the ligamentum teres carries a definite blood supply to the head of the femur regardless of the age of the patient.

"The blood supply is a definite factor in maintaining the nourishment of the head of the femur in cases of intracapsular fractures.

"We believe from this study and clinical experience that operations for repair of nonunion of the neck of the femur should be planned and executed in a manner which will not disturb or injure the vessels coming through the ligamentum teres, nor should foreign material approximate too closely the foveal area.

"Although in none of the four cases in which the removed femoral heads were studied was there complete necrosis, in three of them the roentgenograms showed definitely increased density in the fragment of the head. Santos'* observations, notwithstanding, are of definite clinical value in our estimation.

"Many factors probably enter into the production of nonunion in intracapsular fractures of the femoral neck."

Sciatic Irritation and Reduced Lumbosacral Joint Space

Dr. Paul C. Williams and associates at the University Hospital, Ann Arbor, Mich., have made it a routine procedure for the past two years to take anteroposterior and lateral roentgenograms of the dorsal, lumbar and sacral spines, and anteroposterior views of the pelves of all patients complaining of a painful back. His report was published in the JOUR. AMER. MED. ASSN. 99: 1677-1681 (Nov.) 1932. In the majority of patients suffering with sciatic irritation, they note a lesion consisting of a narrowing or complete loss of the intervertebral disk between the fifth lumbar and the first sacral vertebræ. Sciatica, he says, may be either a neuralgia or a neuritis, depending on the severity and duration of the irritation. It may result from pathologic changes within the meninges, spinal cord or cauda equina, or it may be due to any mechanical, toxic or inflammatory irritation along the course of the nerve or the segments from which the nerve trunk is formed. Some of these roentgenograms showed severe arthritic lipping, loss of joint space and constricted intervertebral foramina formed by the fifth lumbar and first sacral vertebræ. Natural fusion was observed in some cases. Why a lesion at this level produces low back pain is explained by Dr. Williams as follows:

"There is an intimate relationship of the fifth lumbar and first sacral nerve segments to the intervertebral disk at the lumbosacral junction, as well as the proximity of the psoas muscle. . . . The quadratus lumborum and multifidus receive part of their innervation from the fifth lumbar nerve through the posterior perforating branches. This must be an important factor in muscle spasm of the lower part of the back, and, associated with a reflex spasm of the psoas muscle, probably explains the spinal rotation and list seen in sciatic irritation."

Most of his patients gave a history of having suddenly experienced pain in the lower part of the back while lifting, bending or taking part in some strenuous activity. Similar attacks would occur later, and after several months, the attacks were accompanied by pain radiating down one extremity, which after repeated exacerbations increased in severity until the patient was incapacitated for a few weeks to several months. The distribution of pain corresponded chiefly to the region supplied by the fifth lumbar nerve segment.

Why does this lesion involve the lumbosacral disk and not the other intervertebral disks within the spine? Williams says that this disk is subject to more physiologic trauma than any other within the entire spine. This is due to several reasons. It is the last disk and therefore supports a heavier load. The weight supported by it does not rest squarely on it, but is transmitted to it as a shearing force which tends to slide the fifth lumbar vertebra forward on the first sacral vertebra. The weight expended as a shearing force depends on the acuteness of the lumbosacral angle and therefore varies in different persons. The security of the disk is further endangered by the fact it is the bond of union between a fixed first sacral vertebra below and a series of movable vertebræ above. There is more motion here than at any other level except the lumbodorsal junction. The facets of the fifth lumbar vertebra are placed obliquely, thus differing from the transverse position of the dorsal, and the saggital position in the lumbar region, thereby permitting anterior and lateral flexion as well as extension and a moderate amount of rotation.

The cause of reduced intervertebral space is not yet certain. However studies thus far have shown that tuberculosis, congenital anomalies, and a functional cessation of the nucleus pulposes are etiological factors. Williams does not stress the importance of tuberculosis or congenital anomalies. A rupture of the nucleus pulposus is more common and has been demonstrated at postmortem studies. There is not an immediate loss of joint space following a rupture of the nucleus as the fibers of the annulus fibrosus remain interposed between the two vertebræ. However, as motion continues pressure atrophy results, thus permitting direct contact between the adjacent cortical surfaces of the vertebral bodies. At any event, he says that there is a loss of joint space owing to the settling of the vertebra above, which in turn causes a partial subluxation of the articular facets and a diminution in the diameter of the intervertebral foramina.

He concludes as follows:

"1. A narrowing or complete loss of the lumbosacral intervertebral disk with a localized arthritic reaction is found in the majority of cases of sciatica and frequently in cases of lumbago.

"2. Continued physiological trauma to an intrinsically weak lumbosacral region affords a favorable site for traumatic diseases.

"3. A rupture of the nucleus pulposus of the lumbosacral disk would produce clinical and roentgen findings observed in those cases which showed a reduced lumbosacral joint space.

"4. Sciatic irritation is probably due to motion at the lumbosacral joint plus the destruction of the intervertebral

*Santos, J. V.; Changes in Head of Femur After Complete Intracapsular Fracture of the Neck: Their Bearing on Nonunion Treatment, *Arch. Surg.* 21: 470 (Sept.) 1930.

foramen and the arthritic lipping which follows the loss of the joint space.

"5. The treatment indicated is a fixation of the lumbosacral joint."

Book Notices

STRUCTURE OF THE VERTEBRATES By Malcolm E. Little. Cloth. Pp. 392. Price, $3.00. Ray Long & Richard R. Smith, Inc., 12 E. 41st St., New York City, 1932.

A text for a half year course in comparative anatomy. The first part, vertebrate zoology, considers the systematic relationship of the groups of vertebrates, each class being included in a separate chapter. Those orders which have a direct bearing upon the evolution of man are included first. Part two takes up comparative morphology, including a chapter on mechanics of development. Part three takes up the evolution of the vertebrates, including a chapter on adaptive radiations of the vertebrates.

A STANDARD CLASSIFIED NOMENCLATURE OF DISEASE. Compiled by The National Conference on Nomenclature of Disease. Edited by H. B. Logie, M.D., C.M. Fabricoid. Pp. 702. Price, $3.50. The Commonwealth Fund, 578 Madison Ave., New York City, 1933.

The text of this book was compiled by the National Conference on Nomenclature of Disease. Its text has been approved by a glittering array of medical groups, among them the American Medical Association, the American College of Surgeons, The American Hospital Association and the American Public Health Association.

The numerous authors have agreed upon terms to be used in denominating every body area and every disease condition. They have not only agreed upon a uniformity of naming but have by an intricate system of numbering made it possible to indicate a disease and its location in the body by a combination of six or at the most seven digits.

The system lends itself readily to filing of records. It allows sorting for easy reference and for easy compilation of statistics as well. This compilation of desirable features has not been found in present systems of saving and filing records.

Previously when records were filed so that the individual record could be readily come upon, the various pathological groups were scattered or if the pathologies were grouped in filing, then the patient's record was forever lost in the files.

If the ideas of the author prevail, some dictionary rewriting will be necessary, since several disagreements from word arrangement and spelling are noted. But that has been done before, particularly rearrangement of medical dictionaries. A uniformity of nomenclature is greatly to be desired and a conformity to any standard, correct or incorrect, would be a relief. It is good to note that the authors avoid when possible the designation of a disease by the name of its discoverer or early catalogers. If those about to take medical examinations or those writing for publication or speaking to the profession could depend upon being understood in their use of terms, a great load would be lifted.

R. C. Mc.

THE MENACE OF NARCOTIC DRUGS. By E. George Payne. Cloth. Pp. 294. Price, $1.50. Prentice-Hall, 70 Fifth Ave., New York City, 1931.

A text for teachers in grade and high schools, well written, authentic and informative. While this is scarcely a volume for a physician, it is such a book as may well be recommended to inquiring teachers. It gives the history of past attempts to control the traffic in narcotics and the present regulations for their dispensing, and discusses in understandable terms the effect of narcotics upon the human being.

R. C. Mc.

THE DIFFERENTIAL DIAGNOSIS OF ENDOCRINE DISORDERS. By Allan Winter Rowe, Director of Research, Evans Memorial, Massachusetts Memorial Hospitals. Cloth. Pp. 220 with 50 tables. Price $4.00. The Williams & Wilkins Company, Baltimore, 1932.

How to arrive at a diagnosis of an endocrine disorder and methods of eliminating, by test and observation, the many non-glandular conditions which may simulate an endocrinopathy are described. Extensive laboratory, clinical, and special tests are evaluated.

TEXTBOOK OF MEDICINE. By various authors. Edited by J. J. Conybeare, M.C., M.D. Oxon., F.R.C.P. Assistant Physician to Guy's Hospital. Second edition. Cloth. Pp. 1004, with 26 illustrations and 14 x-ray plates. Price, $7.00. Wm. Wood & Company, Mt. Royal & Guilford Aves., Baltimore, Md., 1932.

The aim of the editor of this book is to present a textbook of medicine within a small compass, and yet not produce anything in the nature of a synopsis. Lengthy descriptions of the physical signs of disease are omitted. Laboratory tests are evaluated but the technic is not described. The section on heart disease is illustrated with several typical electrocardiograms and their interpretation. In the treatment of pneumonia, the wisdom of giving a specific anti-serum is questioned. The section on venereal diseases and neurosyphilis has been brought up-to-date and contains much valuable information for the general practitioner and even the specialist. An appendix on the examination of a life insurance applicant will be found of value. The routine examination with a table of heights and weights is included.

DISEASES OF THE SPINAL CORD. By Williams B. Cadwalader, M.D., Professor of Clinical Neurology, University of Pennsylvania Medical School, etc., with an introduction by William G. Spiller, M.D., Professor of Neurology, University of Pennsylvania Medical School. Cloth. Pp. 204, with 72 illustrations. Price $5.00. Williams & Wilkins Company, Baltimore, 1932.

A textbook for students of neurology that also contains material of use to the general practitioner. The reasoning is based on the neuron theory. Primary degeneration of nerve cells and nerve fibers "may result from trauma, acquired disease, *nutritional defects*, etc., or may be dependent upon an inherent lack of vitality." The anatomy of the cord, reflexes and reflex action, topographic diagnosis, are subjects that are well covered. The classical diseases of the cord are interestingly described and strongly illustrated. The author has drawn from a comprehensive literature and his own rich experience in preparing this volume.

HUMAN HEREDITY. By Erwin Baur, Eugen Fischer and Fritz Lenz. Cloth. Pp. 734, with 172 illustrations and 9 plates. Price, $8.00. The Macmillan Company, 66 Fifth Ave., New York City, 1931.

This is an English translation from the third German edition. It takes up the general theory of heredity, the racial differences in man, and heredity in disease and in mental endowment. There are studies concerning the various forms of bodily structure or types of constitutions and concerning the blood group.

Many things besides heredity are brought into the picture of disease. For instance, it is said that chlorosis tends to run in families but "other circumstances than a lack of iron must be contributory causes of the disease." It is suggested that the decline in frequency of chlorosis in recent years is caused by the discontinuance of tight lacing. In the days when a wasp waist was fashionable, the spleen is supposed to have been so constricted that it could not make a sufficient number of red corpuscles.

"Every infectious disorder represents a struggle between the invading microscopic germs and the infected organism," it is pointed out, and not only does each species of animal have its own particular kind of microscopic parasite, but also individual human beings vary considerably in their susceptibility.

"When, for instance, diphtheria bacilli gain access to the mucous membrane of a child's throat, that child will not necessarily suffer from diphtheria. There are, in fact, three grades of susceptibility. In some children, the bacilli cannot gain a lodgment at all; in other children, they gain a lodgment and multiply, but the hosts do not become obviously ill in children of the third category, the illness we know as diphtheria develops. Once more, among those who actually suffer from diphtheria, the severity of the disease varies greatly from person to person. Some children have no more than a moderately sore throat; and at the other end of the scale are the children who die from the disease."

As to malignant tumors, it is said: "There is no longer any sense in attempting to discover a single specific cause for cancer in general. If we talk of 'the' cause of cancer, we can only mean an element common

to the various causes of cancer, and in this sense we may say that 'the' cause of cancer is idiokinesis. By the same token, it is futile to search for a general cure of cancer."

HABITS—Their Making and Unmaking. By Knight Dunlap, Ph.D., Professor of Experimental Psychology in the Johns Hopkins University. Cloth. Pp. 326. Price, $3.00. Liveright, Inc., 31 W. 47th St., New York, N. Y., 1932.

In "Habits," Dr. Dunlap flouts the "principles of learning" of the widely used texts and sets about to clarify existing knowledge of the principles of habit and learning. While he believes that first importance must reside in fundamental research in "pure" science, he holds that since applications are unavoidable, lingering antiquated theories must be discarded when out of accord with ascertained facts. In outlining the interrelation of the processes of learning and unlearning, of habit making and habit breaking, he shows how a fuller understanding of the learning process makes possible more adequate procedure in the breaking of disadvantageous habits.

Through the last four chapters on application one follows with absorbing interest his theory for "unmaking" of habits by the voluntary conscious exercising of them. The stutterer, who is taught to stammer according to his accustomed pattern, a thing he is not at first capable of, is ready to discard his impediment when stammering becomes entirely a voluntary performance. But when, undaunted, Dr. Dunlap cautiously applies the theory to the sexual "bad habits," we see problems enormously increased and the technic seems fraught with dangerous and alarming unknowns. He says no individual is a maladjusted person unless he exhibits detrimental traits in a way which seriously interferes with his personal enjoyment of life or with his social relations. While almost all persons are maladjusted in certain ways, neurotic individuals are those whose maladjustment is of serious import to others.

Many psychological questions which interest all of us are thoughtfully analyzed. The book has an appendix, an ample bibliography for each chapter, and a subject index.

V. K.

THE MEASUREMENT OF THE INTELLIGENCE OF YOUNG CHILDREN BY AN OBJECT-FITTING TEST. By Ruth Ellen Atkins, Ph.D. Paper. Pp. 89. University of Minnesota Press, Minneapolis, Minn., 1931.

A nonverbal intelligence test for use with young normal children, with the deaf and with children from foreign homes. It makes possible the study of the intellectual capacity of children not reached effectively by the scales previously in use. The monograph describes the development and standardization of this test and contains a manual for its administration with explicit directions. It contains a bibliography of nearly 50 books and articles on intelligence testing.

Conventions and Meetings

Announcements

American Osteopathic Association, Milwaukee, July 24-28.

American Osteopathic Society of Ophthalmology and Otolaryngology, Milwaukee, July 20-22.

American Osteopathic Society of Proctology, Milwaukee, July 24-28.

American College of Osteopathic Surgeons, St. Joseph, Mo.

Arkansas state convention, Pine Bluff, June.

California state convention, Oakland.

District of Columbia convention, Washington, May.

Eastern states convention, New York City, March 25 and 26.

Florida state convention, St. Petersburg.

Illinois state convention, Springfield, March 1, 2.

Indiana state convention, Anderson.

Kansas state convention, Larned, October 5, 6.

Michigan state convention, Lansing, October.

Middle Atlantic states convention, Lynchburg, Va.

Minnesota state convention, St. Paul, May 5 and 6.

Missouri state convention, Springfield, October.

Montana state convention, Glendive.

New England states convention, Boston, May 5 and 6.

New Mexico state convention, Albuquerque, September.

New York state convention, Syracuse, October.

Ohio state convention, Toledo, May 14-16.

Oklahoma state convention, Oklahoma City, April 11 and 12.

Pennsylvania state convention, Harrisburg, May 12, 13.

Tennessee state convention, Nashville, May.

Vermont state convention, St. Albans, October.

Virginia state convention, Richmond.

CALIFORNIA

State Association

The mid-winter meeting of the northern division of the California Osteopathic Association was held at Palo Alto, January 8, at the Cardinal Hotel. The program included the following speakers: Ernest G. Bashor, Edward B. Jones, Los Angeles, and Warren B. Davis, Long Beach. The meeting closed with a banquet at which time motion pictures of a scientific nature were shown.

The mid-winter meeting of the southern division of the California Osteopathic Association was held at Pasadena, February 4, at the Vista del Arroyo Hotel. The program included the following speakers: Charles H. Spencer, Edward T. Abbott, Dayton Turney, Dain L. Tasker, Floyd J. Trenery, Los Angeles, and Carl H. Phinney, Glendale.

East Bay

The January 17 meeting was held at the East Bay Osteopathic Clinic. Jack Goodfellow, Oakland, president, gave a report of the mid-winter meeting of the state association at Palo Alto.

Glendale

Lucille Van Velzer, secretary, reports that at the January 9 meeting Edward E. Brostrom spoke on "Common Skin Diseases." Walter W. Hopps was program chairman.

At the January 23 meeting T. J. Ruddy spoke on "Revolutionary Methods in the Treatment of Eye Diseases." Pearl S. Rittenhouse was Program Chairman.

Hollywood

At the January 11 meeting W. W. W. Pritchard spoke on "Nervous Reflexes of the Neck Region."

Los Angeles

Charles H. Spencer was scheduled to address the February 13 meeting on "Applied Nervous Physiology," part IV of a series of lectures.

Osteopathic Physicians Club—Oakland

The new officers installed at the February 2 meeting are as follows: President, Edward I. Kushner, Oakland; vice president, Clara M. Miller, Alameda; secretary, Charles E. Peirce, Oakland; trustees: D. H. Wells, Oakland, and W. S. Carey, San Leandro.

Pasadena

At the January 19 meeting Carl H. Phinney, Glendale, spoke on "Spinal Injuries and Their Treatment." J. Strothard White presided.

COLORADO

State Association

A meeting was held at Colorado Springs, January 21. The following program was scheduled: N. E. Atterbury, Denver, "Management of the Third Stage of Labor"; M. C. Handley, Longmont, "The Aschheim-Zondek Test of Pregnancy"; H. L. Will, Colorado Springs, "The Conservative Treatment of Lumbar Pathology."

CONNECTICUT

State Association

Alexander Bothwell, Bristol, president, reports that the January 21 meeting was held at New Haven. C. D. B. Balbirnie, Professor of Therapeutics at the Philadelphia College of Osteopathy, spoke on "Comparative Treatment of Medicine and Osteopathy." The president was instructed to visit the Philadelphia college to interest senior students in locating in Connecticut, as he has done for the past two years with very good success. It was decided not to permit members to mail educational literature with the sender's name and "Connecticut Osteopathic Society" appended.

ILLINOIS

State Association

Plans are under way for the convention of the Illinois Osteopathic Association to be held at Springfield, March 1 and 2. The major part of the program will be conducted by faculty members of the Chicago College of Osteopathy. Pressing legislative affairs will be discussed. A. G. Hildreth, Macon, Mo., will address the banquet-meeting.

Chicago—City Association

M. C. Beilke, secretary, reports that a meeting was held February 2. Miss Grace Usher Shuey spoke on character analysis.

Chicago—West Suburban

The annual business, social and dinner meeting was held at the home of Erich and Mrs. Frankowsky, Oak Park, January 18. Officers were elected as follows: President, Dr. Frankowsky; vice president, John P. Lycan, Oak Park; secretary-treasurer, Merle J. Denker, Riverside; program chairman, Byron W. Gutheil, Oak Park.

The February meeting was held at the home of Dr. and Mrs. Gutheil on the 18th.

Fourth District

A meeting was held at El Paso, January 19. H. H. Halladay, Galesburg, lectured on radiography.

INDIANA

St. Joseph Valley

A meeting was held at South Bend, January 18. Dr. James Clutterbuck, sales engineer and character analyst, was the guest speaker. Members of the committees for the coming year were announced by John M. Kauffman, Goshen, president, as follows: Program, C. K. Parker, H. E. Forster and Albert Cleland, South Bend; membership and attendance, O. H. Olsen, H. L. Landis, Elkhart, and E. E. Weaver, Sturgis, Mich.; resolutions, E. B. Porter, L. P. Ramsdell, LaPorte, and J. D. Hall, Kendallville; professional education, L. A. Rausch, J. C. Gulmyer, Elkhart, and L. E. Browne, Fort Wayne.

The next meeting will be held February 16 at Elkhart.

IOWA

Third District

At the January 19 meeting at Burlington officers were elected as follows: President, C. I. Daley, Ft. Madison; vice president, H. L. Gordon, Brighton; secretary, W. K. Lowry, Ft. Madison.

Tri-County

A meeting was held January 12 at Richland. O. P. Grow, Queen City, Mo., gave a lecture on obstetrics. R. R. Pearson, Muscatine, discussed legislative matters.

KANSAS

Central Kansas

The January 26 meeting was held at Lincoln. B. L. Gleason, Larned, spoke on "Appendicitis." Marie A. Quisenbery, Salina, read a paper on "Dietetics and Nutrition." A delightful musical program was given.

The next meeting will be held at Minneapolis.

Cowley County

At the January 26 meeting at Arkansas City, L. E. Brenz, gave a paper on "Endocarditis."

North Central Kansas—South Central Nebraska

The January 12 meeting was held at Hebron with J. R. Bancroft and R. H. DeWitt. T. O. Pierce, St. Joseph, spoke on the costs of medical care in the United States. He also performed an autopsy before the group. Officers for 1933 are as follows: President, H. E. Tunnell, Clyde, Kan.; vice president, Ezra N. Ingham, Wymore, Neb.; secretary-treasurer, Charles F. Harbaugh, Edgar, Neb.; publicity, George F. Piercy, and W. B. Edwards, Concordia, Kan.

SOUTHERN KANSAS

K. A. Bush, Harper, reports that the January 10 meeting was held at Caldwell. After luncheon a program was given in the offices of R. R. Wallace as follows: Dr. Bush, "Common Cold"; L. W. Mitchell, "Influenza"; J. B. Jewett, "Bronchitis"; J. B. Donley, "Intestinal Flu."

The next meeting will be held at Kingman, February 14.

Verdigris Valley

Elva M. Patrick, Fredonia, reports that the January 12 meeting was held at Independence with Mary C. Bell. H. S. Wiles, Neodesha, spoke on "Technic," followed by J. E. Freeland, Coffeyville, on "Vital Statistics." Officers were elected at the December 16 meeting as follows: President, R. Blandin Smith, Independence; vice president, J. R. Cunningham, Cherryvale; secretary-treasurer, Dr. Patrick; student recruiting, Dr. Freeland; clinics, Dr. Wiles; publicity, Dr. Patrick.

MICHIGAN

Detroit

R. K. Homan reports that at the December meeting Warren Wood Custis, Dayton, Ohio, was the principal speaker. He spoke on the application of business efficiency to practice.

At the January 18 meeting Dr. R. S. Dixon of the Detroit Board of Health, spoke on "Social Hygiene."

The February 15 meeting was to have an outstanding specialist speak on dermatology. The Detroit society meets on the third Wednesday of each month.

MISSOURI

Buchanan County—St. Joseph

At the January 25 meeting, O. G. Weed, M. L. Hartwell, and H. M. Husted discussed "Osteopathy's Contribution to Public Health." Committee appointments have been made as follows: Scientific program, John M. Spencer, H. N. Tospon, Blanche Rennick; public health and education, H. L. Hartwell, O. G. Weed, H. M. Husted; medical history and research, W. W. Grows, J. S. Woodruff, Anna H. Hurst; medical economics, T. O. Pierce, T. C. McVey, Raymond L. Smith; scientific and charity clinics, C. Foster, W. P. Lenz, W. E. Hartsock; x-ray and laboratory, C. J. Karibo, L. M. Hanna; institutional service, F. P. Walker, Adrian Elder, T. H. Hedgpeth; affiliated organizations, C. L. Steidley, R. R. Reynolds, H. R. Juvenal.

Central Missouri

The January 19 meeting was held at Mexico. Former State Senator Frank Hollingsworth spoke on "Medical Jurisprudence." H. A. Gorrell, Mexico, read a paper for J. H. Gerard, M.D., on "The Significance of 'Shift to the Left' in Differential Leukocyte Counts and the Nuclear Index as a Means of Interpreting and Recording." A round table discussion was led by J. H. Hardy, Columbia.

The next meeting will be held at Columbia, February 16.

Kansas City

At the January 17 meeting Dr. John F. Herget, president of William Jewell College, spoke on present economic conditions. H. J. McAnally, president, was elected a member of the advisory board of the Missouri Osteopathic Association.

Northeast Missouri

The January 12 meeting was held at Hannibal with F. C. Hopkins and Emmet Hamilton as hosts. After a dinner was served, Edith Pollock, Quincy, Ill., spoke on "Office Management." Earl Laughlin, Jr., Kirksville, gave a summary of the recent flu epidemics.

Northwest Missouri

The January 12 meeting was held at St. Joseph. The speakers were Judge A. B. Duncan, St. Joseph, H. G. Swanson, and H. E. Litton, Kirksville. Officers were elected as follows: President, R. R. Reynolds, Maysville; vice president, H. R. Juvenal, Maryville; secretary-treasurer, C. L. Steidley, Savannah.

Southeast Missouri

H. B. Newlin, Farmington, reports that a meeting was held at De Soto February 12 with Mary Ann McMillan.

Southwest Missouri

Ottis L. Dickey, Joplin, reports that the January 19 meeting was held at Joplin. Myrtle M. Dickey spoke on "Convalescence in Influenza." T. M. King, Springfield, spoke on "Relation of Sinuitis to Otitis Media." Miss Margaret Manora Boylan gave several readings. Officers were elected as follows: President, Clyde B. Spangler, Joplin; vice president, Myrtle M. Dickey, Joplin; secretary, Albert B. Wheeler, Carthage; treasurer, David Copeland, Joplin.

St. Louis

The speakers at the January 17 meeting were Collin Brooke and F. J. Meyer.

West Central Missouri

At the January 26 meeting officers were elected as follows: President, C. F. Warren, Marshall; vice president, H. E. Collins, Butler; secretary-treasurer, E. H. Owen, Harrisonville.

NEW JERSEY

State Association

A meeting was held January 21 at Newark for the purpose of passing on a bill to be introduced in the Legislature this year.

Those in charge of the programs for the year now closing were: H. J. Hoyer, chairman, Sept., Oct., and May; Tice Grinwis, Nov., and Dec.; T. L. Northup, Jan., and Feb.; Vernon Still, March and April.

The February meeting has the following program scheduled: Eye, ear, nose and throat clinic at J. M. Watters' offices, Newark; Dr. Watters, "The Common Cold"; H. Van A. Hillman, New York City, "Proctology for the General Practitioner"; an executive meeting.

Passaic County

On January 24 at Paterson a new district society was organized to be known as the Passaic County Osteopathic Society. The officers are as follows: President, Leroy F. Archbold; vice president, Howard I. Van Dien; secretary, Richard R. Schleusner; treasurer, Hazel R. Lackner; all of Paterson. The following committees were appointed: Advisory, Hiram L. Conklin, Clarence W. Potter, Passaic; Robert T. Dowell, Anna M. Galbreath, J. Walter Jackson, Margie D. Simons, Paterson; publicity, Dr. Archbold; legal and legislative, Dr. Schleusner.

An osteopathic educational campaign has been organized by the new society.

Southern New Jersey

William H. Hart, Moorestown, reports that the January 21 meeting was held at the home of Howard and Rebecca Lippincott, Moorestown. Edwin H. Cressman, Philadelphia, spoke on "Common Skin Lesions." A representative of the Walker-Gordon Laboratories demonstrated by means of moving pictures, scientific methods of producing clean milk.

The next meeting will be held at Woodbury, N. J.

NEW YORK

Central New York

The January meeting was held at Fulton. F. I. Gruman, Syracuse, spoke on "Appendicitis." Judson W. Johnston, Syracuse, spoke on "Neurasthenia." The members of the women's auxiliary attended the meeting.

New York City

The following program is scheduled for the February 16 meeting: Paul G. Norris, Lynn, Mass., "Diseases of Middle Age"; discussion by Franklin Fiske, and E. M. Grossman. A business session is to be held.

Rochester District

Edward L. Spitz-Nagel, reports that at the February 2 meeting William Pidgeon, Jr., M.D., spoke on "Feet." He later introduced W. J. Arthur, M.D., chief of the Podiatry clinic of the Auburn City Hospital, who demonstrated his method of foot support and conducted a clinic.

Western New York

The February 4 meeting was held at Niagara Falls. Hubert J. Pocock, Toronto, was the principal speaker.

OHIO

State Association

The annual meeting of the Ohio Osteopathic Association will be held at Toledo, May 14-16. E. H. Westfall, Findlay, is the program chairman, and W. L. Billings, Toledo, is in charge of exhibits.

Dayton District

A meeting was held at Dayton February 8. R. N. MacBain, Chicago, spoke on the "Autonomic Nervous System and Osteopathic Technic."

Dayton Osteopathic Club

Officers of the recently formed Dayton Osteopathic Club are as follows: President, W. A. Gravett; vice president, Warren G. Bradford; treasurer, Harry F. Cosner.

OKLAHOMA

State Association

A meeting was held January 31 to discuss preliminary plans for the state convention to be held at Oklahoma City, April 11, 12.

Central Oklahoma

L. L. Mincks, Okemah, reports that the January 14 meeting was held at Shawnee. The following program was given: T. G. Billington, Seminole, "Leukorrhea"; M. R. Carner, Wewoka, "Disorders of Menstruation"; R. V. Toler, Shawnee, "Endometritis and Endocervicitis." Legislative problems were discussed.

The February 11 meeting was held at Okmulgee with the following program: Howard C. Baldwin, Tulsa, "Treatment of Mucous Colitis"; T. H. Conklin, Stigler, "Treatment of Skin Diseases"; C. E. Dickey, Eufaula, "Treatment of Localized Abscesses"; H. C. Montague, Muskogee, "Legislation."

The March meeting will be held at Weleetka.

Eastern Oklahoma

R. B. Beyer, Checotah, reports that a meeting was held at Stigler in January with the following program: Dr. Beyer, "The Displacement Treatment in Chronic Sinuitis"; H. C. Montague, Muskogee, "X-ray Findings in the Colon"; round table discussion.

The officers are as follows: President, Dr. Montague; vice president, T. H. Conklin, Stigler; secretary-treasurer, Dr. Beyer.

Kay County

The January 12 meeting was held at Ponca City. D. A. Shaffer and Charles R. Hocker were the principal speakers.

PENNSYLVANIA

Central Pennsylvania

A meeting was held at Lewistown, January 28. H. C. Orth, Lewistown, president, was in charge.

Lehigh Valley

The January 19 meeting was held at Allentown. Charles R. Heard, Allentown, gave a paper on "Psychoanalysis and Its Relation to the Healing Art." Officers for the ensuing year were elected as follows: President, Charles E. Mills, Stroudsburg; vice president, A. G. Walmsley, Bethlehem; secretary-treasurer, D. George Nelis; publicity, Dr. Walsmley.

Lancaster County

The annual election of officers was held January 21 at a meeting at Lititz. They are as follows: President, Harry J. Herr, Lititz; vice president, Leroy W. Lovelidge, Strasburg; secretary-treasurer, E. H. Metford, New Holland.

After the business meeting Francois D'Eliscu, Philadelphia, spoke on the Manchurian situation.

TEXAS

South Texas

The new South Texas Association of Osteopathic Physicians and Surgeons was organized at a meeting held January 21 at Corpus Christi. The officers are as follows: President, B. D. Henry, Corpus Christi; vice president, Paul M. Peck, San Antonio; secretary-treasurer, C. R. Woolsey, Corpus Christi.

The speakers on the program included the following: Dr. Woolsey, J. H. and O. R. LePere, Gonzales; A. L. Kline, Mercedes; W. E. Davis, McAllen; W. E. Gorrell, G. H. Roddy, Corpus Christi; Dr. Peck, Mary Peck, San Antonio; Lena McCrarey, Beeville.

VERMONT

State Association

The following committee appointments should be added to the list which appeared in the December JOURNAL: Professional education, Helen Wieters, Bennington; hospitals, Raymond Martin, Montpelier; student recruiting, Dale S. Atwood, St. Johnsbury; industrial and institutional, C. Fred Wandrey, Bennington; clinics, Howard Slocum, Middlebury; statistics, H. K. Sherburne, Jr., Rutland; legislation, Howard Drew, Barre; professional development, Charles G. Wheeler, Brattleboro.

WEST VIRGINIA

Ohio Valley

The February 2 meeting was held at Steubenville, Ohio. The speakers of the evening were: John W. Hayes, East Liverpool, Ohio, "Sacro-Iliac Strain"; T. V. Sullivan, Wheeling, W. Va., "Vertigo and Its Causes." A general discussion followed. H. R. Pease, president, and F. D. Dornbush, secretary, of Steubenville, were in charge of the meeting.

The next meeting will be held at Holidays Cove.

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A meeting was held at Madison, February 2. W. A. Schwab, Chicago, spoke on "Low Back Problems." Following a banquet Edwin J. Elton, Milwaukee, was presented with a gold watch as a mark of appreciation for his twenty-five years of service as secretary of the Wisconsin society. Harriet A. Whitehead, honorary life member of the A. O. A. and of the Wisconsin society made the presentation address.

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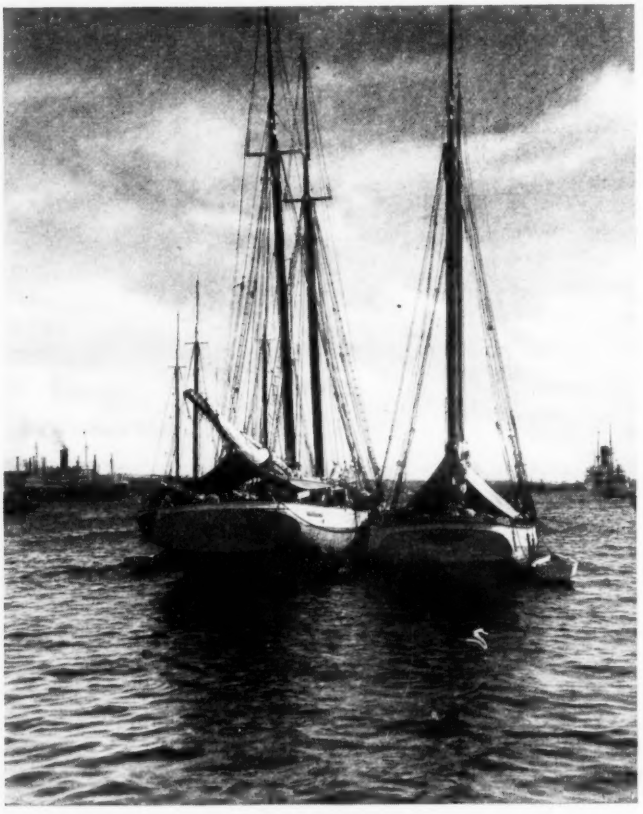

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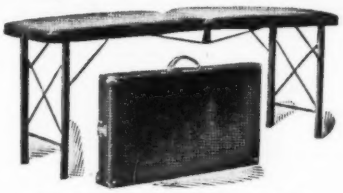

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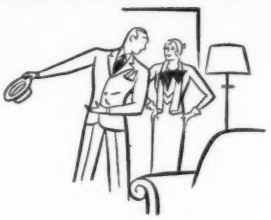

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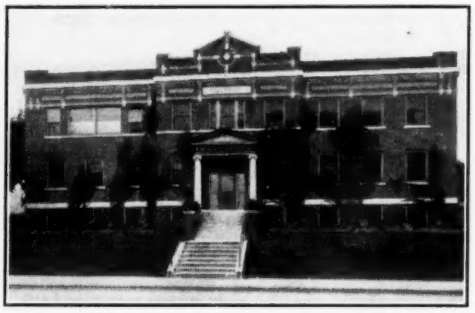

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